

Global Vaccine Action Plan

Regional vaccine action plans 2016 progress reports

(All six regional reports compiled by alphabetic order)



**MINISTERIAL CONFERENCE
ON IMMUNIZATION
IN AFRICA**

**FULFILLING
A PROMISE:
ENSURING
IMMUNIZATION
FOR ALL IN
AFRICA**



**World Health
Organization**

Acknowledgements

This report was prepared by a team led by the World Health Organization Offices for the African and Eastern Mediterranean Regions. The core members of this team include Richard Mihigo, Nadia Abdel-Aziz Teleb Badr, Helena O'Malley and Irtaza Chaudhri. The immunization and polio teams at WHO/AFRO in Brazzaville and the IVB/HQ staff in Geneva also provided substantial support for the finalization of this report.

The authors are also grateful to Brian Wahl and Daniel Erchick of Johns Hopkins University as well as the teams at the Bill & Melinda Gates Foundation and Global Health Strategies (GHS) for their support.



Republique du Sénégal
Ministère de la Santé et de l'Action Sociale
Direction Générale de la Santé
Direction de la Prévention

CARTE DE VACCINATION CONTRE LA MENINGITE A -MenAfriVac®

Région Médicale de : K1
District : K1
Poste / Centre de Santé : Dya
Nom : Badiane
Prénom(s) : Fatou
Date de naissance : 2006
Age : 6 ans Sexe : F
Lieu de naissance : Dya
Date de vaccination : 14/11/2012

SECTION 1

Immunization in Africa: A Time for Action

Immunization is among the most effective public health interventions available. In recent decades, vaccines have contributed to substantial reductions in childhood disease burden globally, saving millions of lives. Immunization was the fundamental strategy for the eradication of smallpox—one of the greatest achievements in the history of public health. Polio is now on the brink of eradication thanks again to the power of vaccines. More children than ever before now live healthy lives, free of vaccine-preventable diseases, because of immunization. Moreover, the impact of vaccines extends beyond public health to children's educational performance, increases in household incomes and, ultimately, greater national economic growth.

This report highlights the achievements made in expanding access to vaccines in Africa and

discusses some of the remaining challenges to achieving universal access to vaccines. The timing of this report coincides with the halfway point of the implementation of the Decade of Vaccines, a 10-year vision of the global health community to expand access to vaccines and immunization services to all by 2020. In 2012, all 194 Member States of the World Health Assembly (WHA) endorsed The Global Vaccine Action Plan (GVAP), a framework to achieve this vision. This report also reflects established commitments, priorities and plans to achieve immunization targets for the continent, as expressed by the World Health Organization (WHO) Africa and Eastern Mediterranean Regional offices. While immunization efforts involve a myriad of local and global actors, this report focuses largely on the achievements, roles and responsibilities of African governments, societies and leaders.

The Global Vaccine Action Plan (GVAP)—endorsed by the 194 Member States of the World Health Assembly in May 2012—is a roadmap to prevent millions of deaths by 2020 through more equitable access to vaccines for all people regardless of where they are born, who they are or where they live.

The GVAP's specific targets include:

GOAL	BY 2015	BY 2020
VACCINATION COVERAGE	90% national coverage and 80% in every district for DTP3 vaccine	90% national coverage and 80% in every district for all vaccines in national programme
NEW AND UNDER-UTILIZED VACCINES	Introduction of one or more new or underutilized vaccines in at least 90 low- and middle-income countries	Introduction of one or more new or underutilized vaccines in all low- and middle-income countries
POLIO	No new cases of polio after 2014 ("interruption of transmission")	Certification of polio eradication
GLOBAL AND REGIONAL ELIMINATION TARGETS	Globally eliminate neonatal tetanus Eliminate measles in at least four WHO regions Eliminate rubella in at least two WHO regions	Measles and rubella eliminated in at least five WHO regions
MILLENNIUM DEVELOPMENT GOAL (MDG) 4	Reduce under-five mortality by two-thirds from 1990	Exceed the MDG 4 target for reducing child mortality



photo: Frederic Courbet / Bill & Melinda Gates Foundation

Immunization coverage has improved dramatically in almost all countries in Africa in recent decades. As a result, millions of children now have access to lifesaving vaccines. Cases of many vaccine-preventable diseases, such as measles and meningitis, have fallen in many African countries. Campaigns to raise awareness around the importance of immunization, including Africa Immunization Week, have contributed to these successes. However, in recent years, attempts to increase immunization coverage on the continent have slowed. Additional commitments are needed to increase coverage to levels high enough to interrupt transmission of diseases and introduce new vaccines into country immunization systems.

Africa has gone more than a year and a half without a case of wild polio, a monumental milestone that reflects the contributions of political leaders, health officials and communities across the continent. Yet challenges remain to ensure sustainability of this success in Africa, including improvements in coverage of the oral polio vaccine (OPV), sustained surveillance and outbreak response capacity, and introduction of the inactivated polio vaccine (IPV) into routine immunization systems.

Reaching all children, strengthening immunization systems and introducing new vaccines require strong political support and regular funding. Countries and development partners must continue to increase the amount of funding available to meet national immunization targets, especially in middle-income countries that are not eligible for international vaccine funding support. Civil society and community leaders must also do their part to strengthen demand for vaccines and hold governments to account. Ensuring that children are able to live healthy lives and maximize their full potential depends on governments and their partners—local, national and international—closing funding gaps, increasing country ownership and ensuring financial sustainability of immunization programs.

At this pivotal time, leaders from across Africa, including from government, civil society and communities, are convening to discuss the commitments and actions that will be necessary to ensure the future envisioned by the GVAP. Economies in Africa have been growing faster than elsewhere in the world, bringing with them new opportunities and advances across sectors, from technology to infrastructure^[1,2]. Taken together, these factors are contributing to a palpable optimism around a better future for Africa. Improved health systems, and immunization in particular, are essential to ensuring this future.

Gavi, The Vaccine Alliance: A Critical Partner in Delivering Vaccines Throughout Africa

Gavi, the Vaccine Alliance, is an international public-private partnership committed to the mission of saving lives and protecting health by expanding access to vaccines in the world's poorest countries. Gavi supports 73 countries around the world by providing funding for 11 new and underused vaccines, including the pentavalent vaccine, which has now been introduced in all Gavi countries, and the inactivated polio vaccine—a key component of the global polio eradication strategy. In addition, the alliance also provides financial support for immunization systems and health systems strengthening. The new Gavi 2016–2020 strategy has put achievement of equitable and sustainable coverage at the center of the Alliance's effort. Work has started with countries across the continent to better align and prioritise interventions to address those gaps.

As a critical partner in delivering vaccines in developing countries, Gavi is able to bring down vaccine prices by pooling country demand; working with donors and countries to secure predictable, long-term funding; and creating healthy vaccine markets. Since 2000, Gavi support has contributed to more than 500 million children receiving immunizations, saving an estimated 7 million lives.

SECTION 2

Routine Immunization Coverage

ISSUE AT A GLANCE

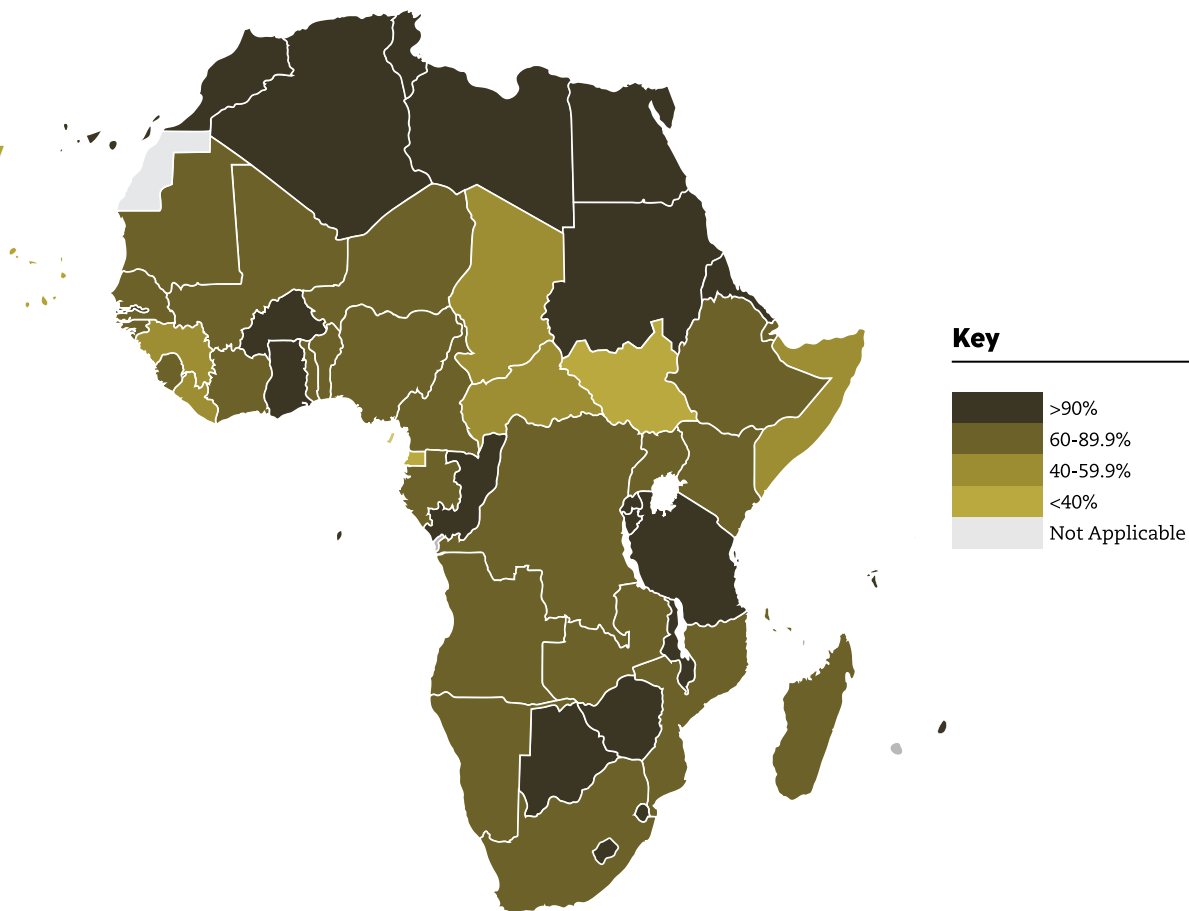
- Routine immunization coverage has increased considerably across Africa—average diphtheria-tetanus-pertussis (DTP3) coverage increased from 57% in 2000 to 80% in 2014. However, progress in recent years has slowed.
- Fewer than half of African countries have already met the GVAP target to increase DTP3 coverage nationally above 90% in 2014. Five African countries have an estimated coverage of less than 50%.
- Meeting coverage targets requires ensuring hard-to-reach children have equitable access to lifesaving vaccinations.

The WHO launched the Expanded Programme on Immunization (EPI), to bring immunization to children around the world, in 1974^[3]. Since then and through national, regional and global efforts to expand routine immunization, coverage in Africa has increased substantially. However, despite rapid improvements in the decades following the launch of the EPI, progress toward improving routine immunization coverage in Africa has stagnated in recent years^[4,5].

Coverage with the third dose of diphtheria-tetanus-pertussis (DTP3) is commonly used to measure the strength and reach of routine immunization programs. This requires reaching children with vaccines three times at appropriate intervals. The GVAP specifies two targets for DTP3 coverage for countries by 2015: (1) at least 90% coverage nationally, and (2) at least 80% coverage in every district^[6].

DTP3 Coverage by Country

2014



¹According to WHO-Unicef estimated coverage

²DTP is almost universally delivered as a combination vaccine that also includes vaccines for *Haemophilus influenzae* type b (Hib) and hepatitis B vaccines in a single vial.

In 1980, no African country among those with available data (12 countries) reported DTP3 coverage greater than 90%, and only one (Mauritius) reported coverage above 80%—the original global coverage target^[3]. By 2014, the proportion of countries in Africa that had already met the GVAP target for national DTP3 coverage was estimated to be 43% (23/54 of countries)^[7]. Coverage of measles-containing vaccine (MCV) is another indicator used by the WHO to assess the strength of immunization systems. In 2014, coverage of one dose of MCV in Africa was 74%^[7]. However, control of measles requires high coverage with two doses of MCV. Less than half of African countries (48%) have introduced a second dose of MCV and as a result, continent-wide coverage of the second dose of MCV is approximately 17%^[7].

Top-10 Best Performing Countries in Africa by Coverage Targets in 2014

Country	DTP1 COVERAGE	DTP3 COVERAGE	MCV2 COVERAGE
GAMBIA	98	96	73
GHANA	99	98	67
LESOTHO	97	97	85
MAURITIUS	99	99	95
MOROCCO	98	98	95
RWANDA	99	99	77
SEYCHELLES	99	99	98
SWAZILAND	99	98	89
TANZANIA	99	97	29
TUNISIA	98	98	95

The estimate of average DTP3 coverage in Africa increased only from 74% in 2010 to 80% in 2014^[7,8]. In addition, there are disturbing disparities among countries. Most countries in Northern Africa reported national coverage above 90%—the GVAP target—while most countries in sub-Saharan Africa have experienced more limited progress^[7]. Five African countries reported DTP3 coverage below 50%^[7].

In 2014, only 17% of countries in Africa (9/54) met the GVAP target of at least 80% DTP3 coverage in all districts in 2014, highlighting geographic disparities within the remaining countries^[7]. Disparities in immunization coverage within countries also exist between poor and wealthy populations. This is particularly troubling, as children in poor households are at much greater risk of dying from vaccine-preventable diseases than children in relatively wealthier households. Increased focus on equity is needed to ensure that immunizations reach children of varying geographic and socioeconomic communities in every district nationwide.

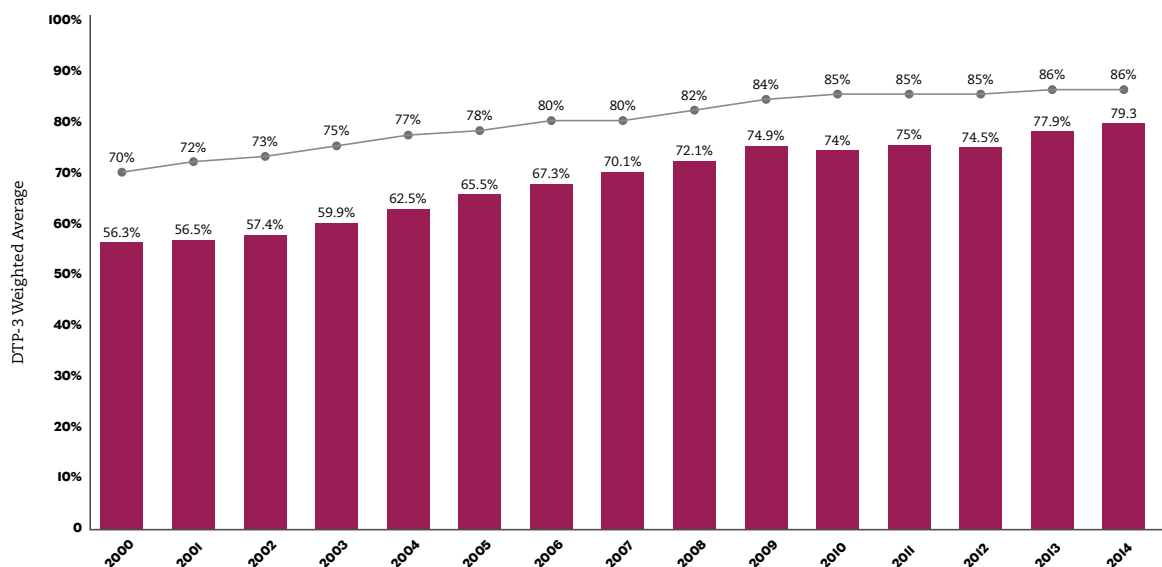
Understanding the Determinants of Vaccine Coverage

In addition to addressing health systems constraints (e.g., poor infrastructure, insufficient numbers of health workers), addressing individual, family and community factors associated with missed and untimely immunizations^[9–14] can improve immunization coverage. In many, though not all, African countries, caregiver education, family size, sex of child, migrant status and birth order of children have all been associated with whether a child is fully immunized or not. A systematic review of studies conducted in low- and middle-income countries found that gender inequality can be an underlying aspect of low demand for immunization^[14]. The researchers found that the low social status of women negatively affects access to vaccination for women because of their limited decision-making power over resources and lack of autonomy^[14]. For this reason, vaccine coverage could be improved in some settings by involving fathers and communities in vaccination activities. Understanding the social determinants of immunization coverage is an important exercise that allows policymakers and health program managers to improve and refine immunization program strategies.

Continent-wide DTP3 Coverage

Population-weighted average, 2000–2014

● African Countries
● Global



Another method for assessing the strength of a country's immunization program is to measure dropouts, or the difference between the number of children who received an initial dose of DTP (DTP1) and the number who received all three doses (DTP3). A difference of less than 10% with high coverage suggests that children are likely to have received all three required doses of DTP, indicating a high level of immunization performance^[15]. In 2014, the difference in coverage between DTP1 and DTP3 was estimated to be approximately 9% across all of Africa^[7,8]. However, some countries in Africa reported a difference of more than 20%, indicating a large proportion of dropouts. The largest proportion of dropouts was found in countries where very few children receive even the first dose of DTP^[7].

Understanding national vaccine coverage is critically important for monitoring the performance of immunization programs, identifying areas within immunization systems that require improvements, and preparing for the introduction of new vaccines^[16]. The WHO/UNICEF Estimates of National Immunization Coverage (WUENIC) are based on administrative and survey data and country official estimates^[16]. The surveys used are limited by their data collection methods—namely, reviewing immunization cards in the home, asking the caretaker about immunization history, or both together. These challenges are compounded in resource-poor settings. Strengthening immunization data quality and coverage estimates, and using the data for improving immunization program performance, are critical steps toward improving coverage in Africa.

Country Leadership, the case of Rwanda: Improving Routine Immunization and New Vaccine Introductions

Rwanda has made substantial improvements in the health of mothers and children in recent years. Through strong national leadership, the country has prioritized equity in access to health services, and used strategies to decentralize health care and strengthen community health workers. In response, child mortality fell by 73% (152 to 42 deaths per 1,000 live births) from 1990 to 2015, surpassing the country's Millennium Development 4 (MDG4) target^[17].

Rwanda has taken a multisector approach to improving health. Routine immunization—as a critical part of the primary health care system—has contributed to the impressive gains in child survival. In 2014, DTP3 reached 99% of eligible children, and more than 90% of children in 2011 were fully immunized with all routine vaccines^[7]. To attain this coverage, officials have integrated innovative approaches, such as incentivizing health workers to reach every child in their catchment area, offering immunization in schools, and focusing on health education and communication.

Rwanda has also led the way in the introduction of new vaccines. The country was among the first in Africa to introduce the Pneumococcal conjugate vaccine (PCV) in 2009^[18]. Two years later, Rwanda introduced the human papillomavirus (HPV) vaccine, providing girls protection from cervical cancer—the most common cancer among women in the country^[19]. Rwanda subsequently followed up with introductions of the rotavirus vaccine in 2012 and the combined measles-rubella vaccine in 2014.

Rwanda's example highlights the power of high-level political engagement with immunization combined with a broad commitment to strengthening health systems.

² 99% is the highest possible coverage estimate for countries in the WHO/UNICEF annual vaccine coverage estimates.

SECTION 3

Immunization and the Potential for Disease Elimination

ISSUE AT A GLANCE

- Immunization is a powerful intervention for the elimination and, in some cases, eradication of disease.
- The world is on the brink of eradicating polio; however, several challenges remain, including conducting high-quality immunization campaigns, improving routine immunization, introducing the inactivated polio vaccine (IPV), and addressing security challenges to reach every child.
- Other diseases targeted for elimination in the GVAP, including measles and neonatal tetanus, persist in Africa and efforts are needed to increase coverage for vaccines against them.

Through an unprecedented global effort, immunization strategies led to the eradication³ of smallpox in 1977, the only human disease so far to have received this distinction. To build on this success and the power of vaccines to control diseases, as part of the GVAP, countries and international partners identified several other vaccine-preventable diseases—including polio, maternal and neonatal tetanus, measles, and rubella—as targets for eradication or elimination. Many of these diseases pose a particular challenge for Africa.

Recent improvements in immunization coverage, driven by support from countries and international donors, have resulted in fewer vaccine-preventable diseases among children in Africa^[20]. Deaths from measles, for example, declined by 86% between 2000 and 2014 in the African Region, and the continent has been without wild poliovirus transmission for more than a year^[20–22]. Despite these achievements, other critical diseases, including measles and neonatal tetanus—which have been eliminated or nearly eliminated in most regions of the world—remain endemic in Africa^[20].

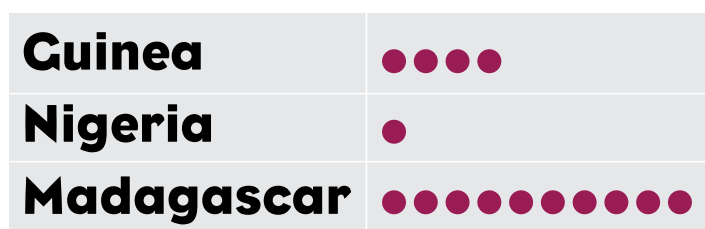
Polio Eradication

Polio Eradication: Globally, transmission of polio is now restricted to only two countries, Afghanistan and Pakistan. Africa has been free of wild polio since 11 August 2014, when the last case of wild poliovirus type 1 (WPV1) was identified in Somalia^[23]. Transmission of WPV2 and WPV3 were interrupted earlier in the African Region, in 1999 and 2012, respectively. However, major threats to the eradication of polio still exist in Africa. For instance, there is the risk of reintroduction of the virus if routine immunization coverage with three doses of polio vaccine—currently 79% across Africa—is not increased and sustained. Oral polio vaccine (OPV) can on rare occasions mutate into “circulating vaccine-derived poliovirus” (cVDPV) in undervaccinated populations. This highlights the need to intensify surveillance for acute flaccid paralysis (AFP), strengthen routine immunization systems, and introduce inactivated polio vaccine (IPV)^[22].

cVDPV Cases, 2015

Cases of circulating vaccine-derived poliovirus in 2015

● = cVDPV case



³ “Eradication” is the global reduction of disease transmission to zero. “Elimination” refers to the reduction of disease transmission to zero in a specified geographic area. “Control” is the reduction of disease burden below a specified number of cases.

SECTION 4

New and Underutilized Vaccines

ISSUE AT A GLANCE

- The introduction of new vaccines in Africa has been a major success. The GVAP target of at least 90 low- and middle-income countries introducing one or more new or underutilized vaccines is on track to be met globally, in large part due to successes across Africa driven by African leaders in partnership with Gavi.
- Many countries in Africa have introduced multiple new vaccines, such as pneumococcal conjugate vaccine and rotavirus vaccine, at the same time. This highlights the high priority of vaccination among political leaders in Africa.
- The ultimate impact of new vaccines in Africa—as measured by lives saved and illnesses averted—is dependent on the number of children immunized. Countries will need to continue improving routine immunization coverage to achieve the full promise of these vaccines.

In the past two decades, the world has made tremendous advances toward developing and introducing new vaccines. Today, 25 diseases are preventable with vaccines. In the past, many low- and middle-income countries, including those with the highest child mortality rates, have been slow to adopt new vaccines, due to myriad factors including relatively high vaccine costs and competing health priorities. Fortunately, this has changed in recent years due to increased national and subnational political will, unprecedented support from the global community, and funding support from Gavi.

In 2013, all WHO member countries committed to ensuring that at least 90 developing countries introduced one or more new or underutilized vaccines before 2015^[6]. Countries in Africa have contributed substantially toward realizing this target and, as a result, it is on track to be met^[25]. As of 2014, 128 new vaccines have been introduced in developing countries around the world, including many African countries—some countries have introduced multiple new vaccines. Looking ahead, the GVAP specifies that all low- and middle-income countries should introduce one or more such vaccines by 2020.

There are several issues that countries must consider when assessing whether or not to introduce a new vaccine. Some of the issues include disease burden, the strength of the immunization program, the cost and effectiveness of available vaccines, and political will. To ensure country ownership and to guide vaccine decision-making, many countries have set up independent technical advisory groups, as recommended by the GVAP^[6].



New and/or underutilized vaccines relevant to Africa include the following:

Haemophilus influenzae type b vaccine

Haemophilus influenzae type b (Hib) is a bacterium that can cause severe diseases such as pneumonia and meningitis among children. In 2000, when only two countries in Africa were using Hib vaccine, it caused approximately 180,000 deaths in Africa^[26]. All countries in Africa are now immunizing children with Hib vaccine, primarily in combination with four other antigens (i.e., diphtheria, tetanus, pertussis, and hepatitis B). With sufficient coverage, Hib vaccine can virtually eliminate this serious infection from populations^[27–29].

Pneumococcal conjugate vaccine

Like Hib, pneumococcus can cause life-threatening pneumonia, sepsis and meningitis among children. It is one of the leading causes of vaccine-preventable deaths globally, having caused approximately 300,000 deaths in the Africa Region in 2008^[30]. At the time, no country in Africa was using pneumococcal conjugate vaccines (PCV)^[18]. Today, 41 countries in Africa are using PCV in their routine immunization programs^[18].

Inactivated polio vaccine

Polio, a highly contagious viral infection that can lead to paralysis or death, is now endemic in only two countries globally. Africa has not reported a case of wild-type polio since August 2014. The introduction of at least one dose of IPV, in conjunction with OPV, is a critical component of the Polio Eradication and Endgame Strategic Plan, as it will help reduce the risk of outbreaks associated with use of OPV. Adoption of IPV in Africa has increased significantly recently. Of the 17 countries in Africa that have introduced IPV, all but one introduced in either 2014 or 2015^[18].

Meningitis A vaccine

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 an area of 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. Group A disease has been virtually eliminated from

the region, constituting a tremendous public health success. However, studies indicate that it could make a resurgence if high coverage is not maintained through routine immunization programs^[31].

Rotavirus vaccine

Rotavirus is the leading cause of severe diarrhea among children around the world^[32]. Without vaccination, nearly every child will suffer a rotavirus infection by his or her third birthday. Unlike other causes of diarrhea, it cannot be prevented with improvements in water and sanitation alone and cannot be treated with antibiotics. Rotavirus vaccines are now considered one of the most cost-effective interventions for preventing diarrheal death and disease^[33]. As of 2015, 30 African countries, many with some of the highest child mortality rates on the continent, have introduced rotavirus vaccines^[18].

Human papillomavirus vaccine

Because of poor access to screening and treatment services, cervical cancer is a leading cause of cancer death among women in developing countries. Two vaccines that provide protection against the strains of human papillomavirus (HPV) that cause approximately 70% of cervical cancer cases are now available in most developed countries. However, high prices and delivery challenges (HPV vaccines are given to adolescents) have been barriers to widespread routine use of HPV vaccines in many countries in Africa. With Gavi support, eight countries are now using HPV vaccines routinely in Africa and an additional 21 countries on the continent are conducting demonstration projects with HPV prior to widespread routine use^[34].

While the introduction of new vaccines has been promising in recent years, efforts to increase routine immunization coverage, particularly among those most at risk of diseases, will be critical to ensuring that the new vaccines reach their full life-saving potential.



photo: Bill & Melinda Gates Foundation

Breaking the Cycle: Meningitis Vaccine Virtually Eliminates a Devastating Disease

In 1996, an epidemic of group A meningococcus swept through the 26 countries in sub-Saharan Africa known as the “meningitis belt.” The disease, which appears in this region every seven to 14 years, resulted in more than 250,000 cases and 25,000 deaths. After the epidemic, African leaders, including several ministers of health, called for the development of a vaccine to break this devastating cycle.

Less than 15 years later, a conjugate vaccine—MenAfriVac—was introduced through mass vaccination campaigns with support from Gavi, reaching over 220 million children and adults in 16 countries across the meningitis belt between 2010 and 2015. The vaccine was developed through a partnership between the WHO, PATH and the Serum Institute of India with support from the Bill & Melinda Gates Foundation. It was specifically designed for use in sub-Saharan Africa, including the ability to withstand higher temperatures and an affordable price of under US \$0.50 per dose.

Today, meningitis due to meningococcal type A has been virtually eliminated—in 2013 only four cases of the disease were reported in the meningitis belt among unvaccinated people. MenAfriVac has been heralded as a stunning success and example of how country leadership and global partners can come together to control a disease affecting millions of people.

However, challenges remain. Countries in the meningitis belt must maintain coverage of MenAfriVac—through routine immunization programs—to prevent a waning of immunity that could lead to resurgence of the disease^[31].

SECTION 5

Immunization and the Importance of Strong Health Systems

ISSUE AT A GLANCE

- Immunization systems and health systems are closely linked. A weak health system will result in poor immunization coverage.
- Health systems are affected by conflict and public health emergencies and without additional resources, immunization systems can suffer in such situations.
- Introducing new vaccines can sometimes help to improve immunization and health systems.

Routine immunization is an integral part of the overall health system. While some components of the immunization program operate independently, in general, they share several functions and resources with the overall health system. These include health workers, primary health infrastructure, and planning and management systems. Vaccines can and should be a core, integrated part of health services. This includes general maternal, child and adolescent health, as well as other common services, such as malaria prevention and treatment. The effective delivery of vaccines relies on the health systems building blocks identified by the WHO and serves to fulfill the goals and outcomes of a functioning health system. Strong immunization programs can provide health workers with opportunities to reach communities with other important health services, including antenatal care, postnatal checkups, and reproductive health counseling services.

Without strong health systems, the performance of routine immunization systems can be seriously undermined. Immunization programs achieve the highest coverage when positioned within strong health systems that provide a range of high-quality services. As part of its assistance to countries, Gavi supports strengthening health systems, with the goal of increasing immunization coverage and equity as part of overall health improvements.

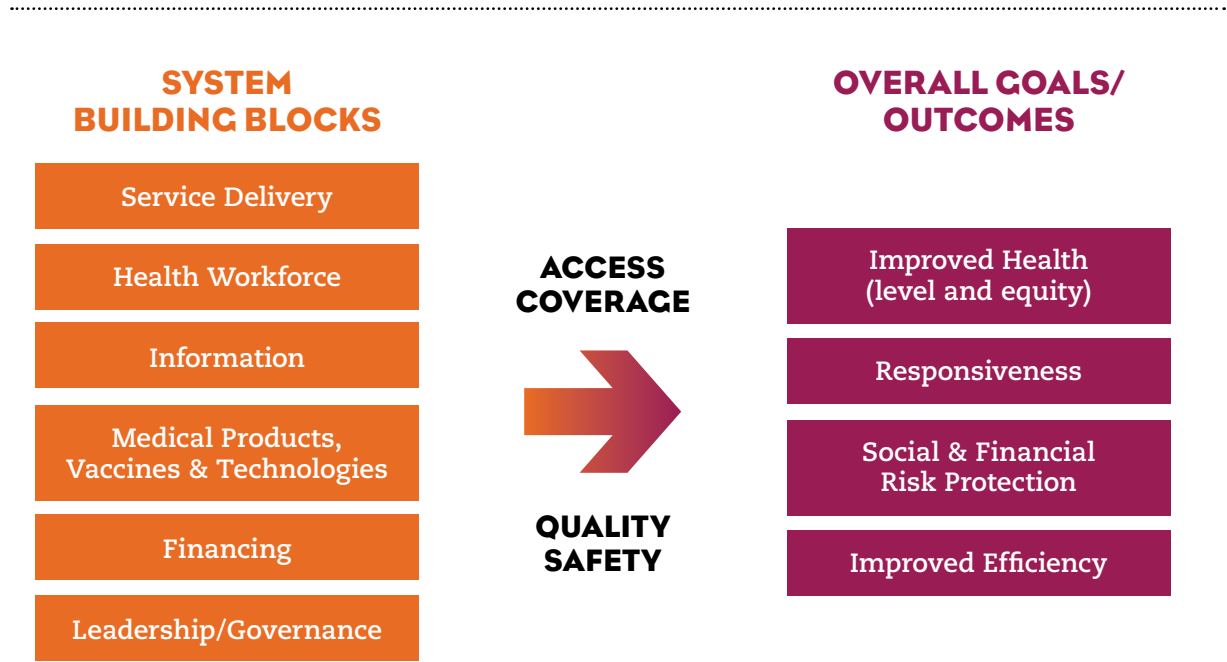




photo: UNICEF/Pflanz

The lack of health infrastructure and shortage of skilled health workers can also adversely affect immunization services especially in conflict-affected situations and during public health emergencies. Vaccine coverage can decline substantially in post-conflict settings; in some cases DTP3 coverage was found to be as low as 6% in such situations^[35]. More recently, the Ebola epidemic in West Africa had a tremendous impact on health services, including vaccination. In some affected areas, health programs reported increased cases of measles and pertussis—both vaccine-preventable diseases. Misinformation regarding the origin and transmission of Ebola exacerbated the situation in Guinea, Liberia and Sierra Leone, leaving some communities unsure about the safety of routine immunization. In response, the WHO issued series of guidelines for immunization programs in the context of the Ebola epidemic. While the Ebola epidemic in West Africa appears to have ended, the lessons learned could help prevent immunization systems from faltering during future public health emergencies.

The introduction of new vaccines can sometimes have positive effects on immunization programs and even the broader health system. For example, in some settings, the introduction of new vaccines can strengthen the immunization system through upgrades to the cold chain systems and capacity-building activities. New vaccines can also create new opportunities for additional contacts with target populations, leading to improved access for some communities and age groups^[37]. However, several factors contribute to the overall effect of new vaccines on health systems. These include local context and the existing strengths and weaknesses of the health system.

Mozambique: Closing the Immunization Gap with Next-Generation Supply Chain Design

Delivering vaccines to health center facilities remains a complex challenge in many countries because supply chains are out of sync with the growing demands placed on them by new and more expensive vaccines. With support from the international organization Village Reach, Mozambique has been a leader in implementing and expanding an innovative approach to vaccine distribution throughout the country.

The new approach streamlined the entire vaccine distribution system—optimizing transport, reassigning roles and responsibilities, increasing data visibility, and integrating supervision and cold chain maintenance into monthly distributions. This new immunization supply chain system started in one province and has now expanded to serve half of the country. The supply chain system design changes included incorporating dedicated logisticians responsible for direct delivery to health facilities, enhanced electronic data collection tools and reporting, and optimized transport loops.

One key factor in Mozambique's progress has been the engagement of national and provincial leaders at the Ministry of Health who have demonstrated openness to new and different approaches to supply chain models, based on evidence generated by modeling of the supply chain as well as global best practices. These “champions of change” provide powerful evidence to the global community regarding the importance of leadership in implementing next-generation immunization supply chains. Their willingness to adopt new models will ultimately ensure all Mozambican children are reached with life-saving vaccines.

SECTION 6

Financing Immunization in Africa

ISSUE AT A GLANCE

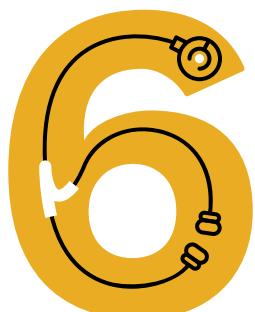
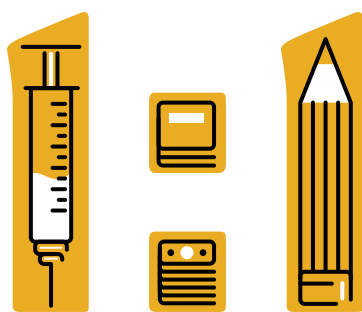
- Vaccines provide benefits to families, communities and countries in the form of both improved health outcomes and economic growth.
- Government funding for immunization in African countries has increased in recent years, complemented by Gavi and other donor funds.
- In many countries across Africa, additional funding, domestic and international, is required to ensure that vaccines are delivered to every child, and that new vaccines can continue to be introduced.

Vaccines provide benefits beyond health outcomes, including averted medical costs and reduced time spent by parents and health care workers caring for sick children. These savings accrue to families, communities and nations as improvements in education, economic growth and poverty reduction^[38]. One study reported that increased coverage of new and underutilized immunizations delivered in Gavi-eligible countries could deliver a rate of return on investment of 18% by 2020^[39].

Earlier, routine vaccines represented approximately 20% of overall immunization program costs in low- and middle-income countries^[15]. As countries began to introduce newer, more expensive vaccines at the start of the century, the cost for vaccine programs in many developing countries has doubled and sometimes tripled^[37]. New vaccines, in particular, provide an unprecedented opportunity to protect children, often with lifelong immunity, from diseases for which there were previously no preventative options. And despite increased costs—due in part to research and development costs and use of more complicated technologies—vaccines remain one of the most cost-effective interventions in public health. As countries look to maximize the health impact of immunization, additional funding will be needed to meet these costs and provide equitable access to vaccines for children across Africa.

Return on Investment

Investments in immunization from 2011 to 2020 will yield a 16-times greater return in averted illness costs, money that can be spent on other priorities.



Return on Investment

The GVAP calls on countries and development partners to increase the amount of funding available for immunization to meet national targets^[6]. The financial sustainability of immunization programs depends on governments, both national and subnational, providing adequate domestic resources with regular evaluation of needs. Efficient routine immunization programs and resource mobilization from partners can help meet funding gaps^[6]. The absolute amount of funding for immunization has increased substantially due to rising immunization program costs^[40]. However, the proportion of vaccine funding provided by countries has remained relatively constant between 2010 and 2014^[40]. Additionally, the proportion of domestic funding varies widely across African countries, ranging from 0% to 100%^[40]. Only 15 African countries fund more than 50% of their national immunization expenditure^[40].

Gavi has invested heavily in Africa, supporting 70% of countries on the continent (38/54 countries) as they increase access to new and underused vaccines. Cofinancing for vaccines through Gavi requires that countries gradually increase their contribution toward the goal of eventually covering the full cost of vaccines. Sixteen countries on the continent do not meet Gavi's GNI eligibility threshold, requiring them to fully self-finance their immunization programs. Moreover, in 2016, two African countries, Angola and Republic of Congo, are preparing to transition out of Gavi support and will face the challenge of increasing their domestic funding to maintain their immunization programs. As with all Gavi transitioning countries, these countries will still receive access to vaccines at Gavi prices for a five-year period post-transition. As additional countries transition and join those shouldering the full costs of their immunization programs, increasing country ownership and financial sustainability of these programs will be increasingly imperative.



photo: Mulugeta Ayene / Bill & Melinda Gates Foundation

Prioritizing Immunization in the Face of Conflict: Libya Allocates Resources for Vaccination

Conflict situations can negatively affect health systems and routine immunization programs. After the Libyan revolution in 2011, the additional demand for health services left the system unable to cope and in near collapse^[42]. With strong support from the WHO, the Libya Ministry of Health sought to rebuild and strengthen its public health program by focusing on the six fundamental building blocks of a strong health system^[42]. Despite numerous challenges in Libya, the country has maintained high routine immunization coverage, with DTP3 coverage not dropping below 94% since the start of the conflict^[7].

The government has made large strides toward introducing new vaccines since the start of the revolution. PCV and rotavirus vaccine were both introduced at the same time in October 2013, a difficult task under ideal situations^[20]. Libya also introduced IPV, as part of a combination vaccine, less than six months later and the HPV vaccine in 2015^[20, 35]. The country also introduced the varicella (chickenpox) vaccine and a combination meningococcal vaccine that provides protection against four strains of meningococcus, including group A.

As a middle-income country, Libya is not eligible for Gavi support and therefore must fully fund its vaccines and immunization system. The high cost of the new vaccines that Libya has introduced and the need to improve immunization delivery systems posed an additional challenge for Libya. During times of conflict and shifting financial priorities, maintaining high immunization coverage and introducing new vaccines require concerted political effort with strong support from global development partners.



photo: Mulugeta Ayene / Bill & Melinda Gates Foundation

Future Visions for Immunization in Africa

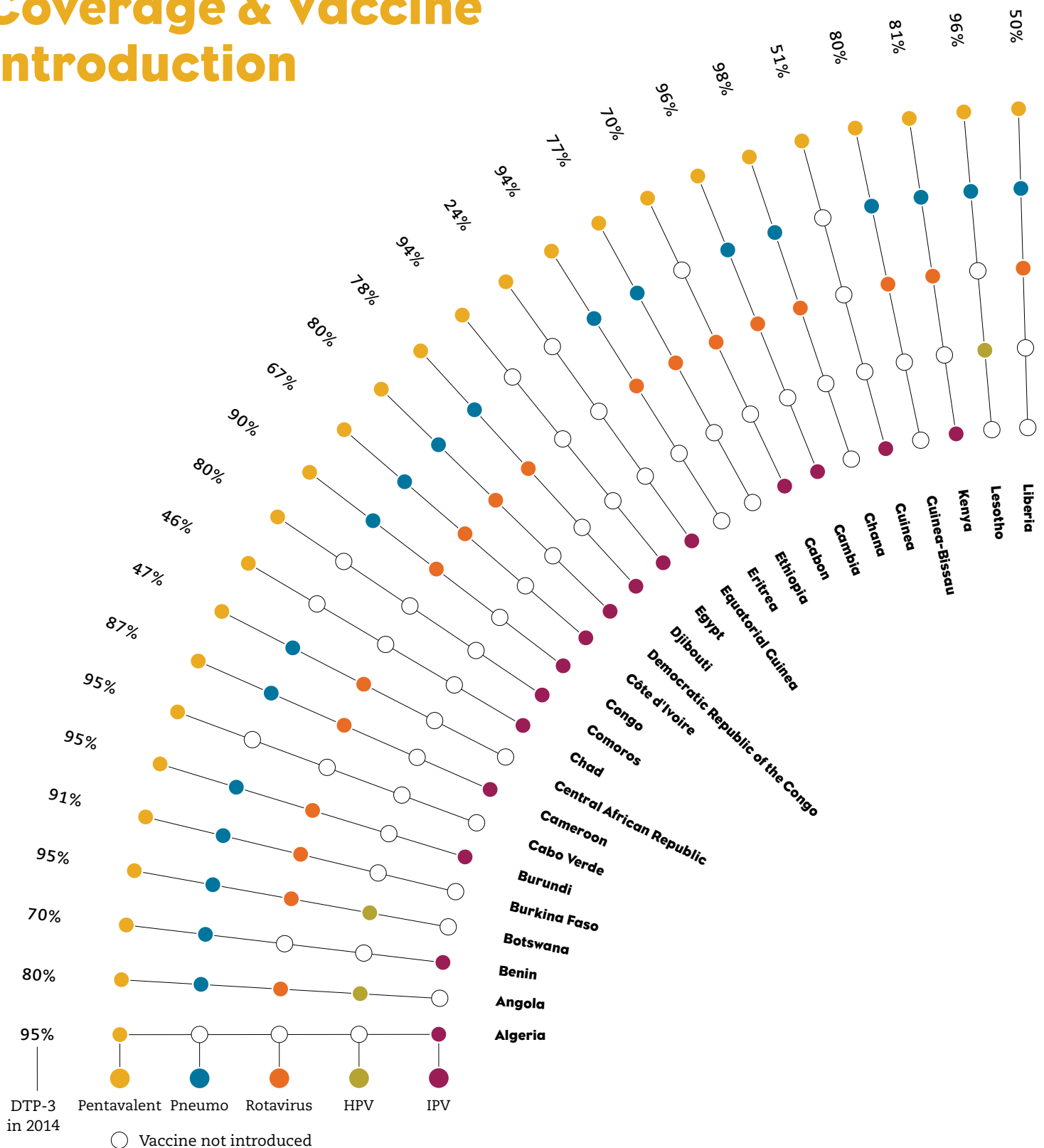
Immunization is undeniably one of the most successful and cost-effective public health interventions available. Tremendous progress has been made to improve immunization coverage and introduce new vaccines in Africa. While many challenges remain, including the emergence of new infections and sustaining progress in the fight against polio, 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.

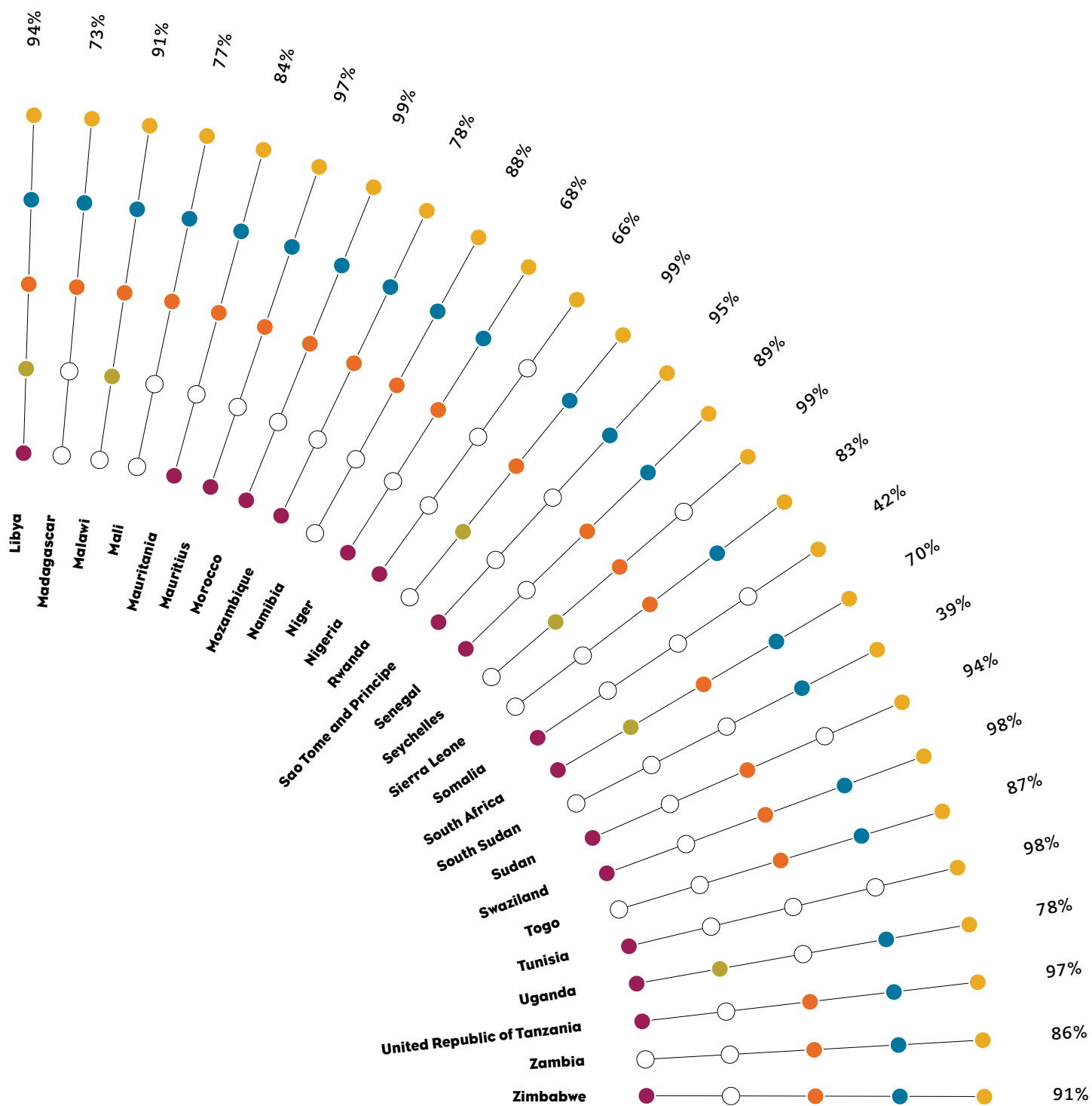
In addition, new vaccines are on the horizon, including vaccines for malaria and Ebola. While children are

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 GVAP provides a strong framework for overcoming challenges toward achieving immunization for all in Africa. Comprehensive strategic immunization plans are also now in place for the African and Eastern Mediterranean Regions that outline specific approaches for achieving immunization targets. Governments, communities and individuals must work collectively to put these plans into action. Together, we can help ensure a healthy future for African children and support economic development across the continent.

Country-Level Overview: DTP3 Coverage & Vaccine Introduction






References

1. Asongu, SA, *The impact of mobile phone penetration on African inequality*. 2012.
2. Kwasi, A, *Institutions and African Economic Development: A Concise Review*. Centre for the Study of African Economies (CSAE), University of Oxford: Oxford, UK.
3. WHA Resolution. WHO Expanded Programme on Immunization. Twenty-seventh World Health Assembly, Geneva, 1974.
4. Arevshatian, L, et al., *An evaluation of infant immunization in Africa: is a transformation in progress?* Bull World Health Organ, 2007. **85**(6): p. 449–57.
5. Machingaidze, S, CS Wiysonge, and GD Hussey, *Strengthening the expanded programme on immunization in Africa: looking beyond 2015*. PLoS Med, 2013. **10**(3): p. e1001405.
6. Global Vaccine Action Plan. *Decade of vaccine collaboration*. Vaccine, 2013. **31 Suppl 2**: p. B5–31.
7. WHO and UNICEF estimates of national immunization coverage. 2014.
8. Nations, U, *World Population Prospects*. 2014.
9. Gibson, DG, et al., *Individual level determinants for not receiving immunization, receiving immunization with delay, and being severely underimmunized among rural western Kenyan children*. Vaccine, 2015. **33**(48): p. 6778–85.
10. Ahanhanzo, CD, et al., *Determinants of routine immunization costing in Benin and Ghana in 2011*. Vaccine, 2015. **33 Suppl 1**: p. A66–71.
11. Clark, A and C Sanderson, *Timing of children's vaccinations in 45 low-income and middle-income countries: an analysis of survey data*. Lancet, 2009. **373**(9674): p. 1543–9.
12. Canavan, ME, et al., *Correlates of complete childhood vaccination in East African countries*. PLoS One, 2014. **9**(4): p. e95709.
13. Awoh, AB and E Plugge, *Immunisation coverage in rural-urban migrant children in low and middle-income countries (LMICs): a systematic review and meta-analysis*. J Epidemiol Community Health, 2015.
14. Merten, S, et al., *Gender Determinants of Vaccination Status in Children: Evidence from a Meta-Ethnographic Systematic Review*. PLoS One, 2015. **10**(8): p. e0135222.
15. Maurice, JM and S Davey, *State of the World's Vaccines and Immunization*. 2009: World Health Organization.
16. Burton, A, et al., *WHO and UNICEF estimates of national infant immunization coverage: methods and processes*. Bull World Health Organ, 2009. **87**(7): p. 535–41.
17. Unicef, *Committing to Child Survival: A Promise Renewed*. Progress Report. 2015: United Nations Children's Fund, The (UNICEF).
18. VIMS Report: *Global Vaccine Introduction*. September 2015. International Vaccine Access Center (IVAC). 2015: Johns Hopkins Bloomberg School of Public Health.
19. *Human papillomavirus and related cancers in Rwanda: Summary report 2010*, in WHO/ICO Information Centre on HPV and Cervical Cancer. 2010: Geneva.
20. Liu, L, et al., *Global, regional, and national causes of child mortality in 2000–13, with projections to inform post-2015 priorities: an updated systematic analysis*. Lancet, 2015. **385**(9966): p. 430–40.
21. World Health Organization (WHO), *Global control and regional elimination of measles, 2000–2012*. Weekly Epid. Rec., 2014. **89**(6): p. 45–52.
22. World Health Organization (WHO), *Report on the status of polio eradication to WHO's Executive Board*. 2015.
23. Independent Monitoring Board of the Global Polio Eradication Initiative, *Now is the time for peak performance*. 2015.
24. World Health Organization (WHO), *Measles vaccines: WHO position paper*. Weekly Epid. Rec., 2009. **84**: p. 349–360.
25. 2015 Assessment Report of the Global Vaccine Advisory Action Plan. 2015.
26. Watt, JP, et al., *Burden of disease caused by Haemophilus influenzae type b in children younger than 5 years: global estimates*. Lancet, 2009. **374**(9693): p. 903–11.
27. Adegbola, RA, et al., *Elimination of Haemophilus influenzae type b (Hib) disease from The Gambia after the introduction of routine immunisation with a Hib conjugate vaccine: a prospective study*. Lancet, 2005. **366**(9480): p. 144–50.
28. Cisse, MF, et al., *The Elimination of Haemophilus influenzae type b meningitis following conjugate vaccine introduction in Senegal*. Pediatr Infect Dis J, 2010. **29**(6): p. 499–503.
29. Lewis, RFK, A; Gessner, B D; Duku, C; Odipio, J B; Iriso, R; Nansera, D; Braka, F; Makumbi, I; Kekitiinwa, A, *Action for child survival: elimination of Haemophilus influenzae type b meningitis in Uganda*. Bull World Health Organ, 2008. **86**(4): p. 292–301.
30. World Health Organization; Immunization, V.a.B. *Estimated Hib and pneumococcal deaths for children under 5 years of age*, 2008. 2013 [cited 2016].
31. Karachaliou, A, et al., *Modeling Long-term Vaccination Strategies With MenAfriVac in the African Meningitis Belt*. Clin Infect Dis, 2015. **61 Suppl 5**: p. S594–600.
32. Kotloff, KL, et al., *Burden and aetiology of diarrhoeal disease in infants and young children in developing countries (the Global Enteric Multicenter Study, GEMS): a prospective, case-control study*. Lancet, 2013. **382**(9888): p. 209–22.
33. Paternina-Cacedo, A, F De la Hoz-Restrepo, and N Alvis-Guzman, *Epidemiological and Economic Impact of Monovalent and Pentavalent Rotavirus Vaccines in Low and Middle Income Countries: A Cost-effectiveness Modeling Analysis*. Pediatr Infect Dis J, 2015. **34**(7): p. e176–84.
34. Cervical Cancer Action. [cited 2016; Available from: <http://www.cervicalcanceraction.org/home/home.php>].
35. Bustreo, F, et al., *Improving child health in post-conflict countries: Can the World Bank contribute?* 2005: World Bank.
36. de Savigny, D and T Adam, *Systems Thinking for Health Systems Strengthening*. Alliance for Health Policy and Systems Research; 2009. 2012.
37. Lydon, P, et al., *Introducing new vaccines in the poorest countries: what did we learn from the GAVI experience with financial sustainability?* Vaccine, 2008. **26**(51): p. 6706–16.
38. Bloom, DE, *Valuing vaccines: deficiencies and remedies*. Vaccine, 2015. **33 Suppl 2**: p. B29–33.
39. David, E, DC Bloom, and M Weston, *The value of vaccination*. World Econ, 2005. **6**(15–39).
40. World Health Organization; Immunization, V.a.B. *Immunization surveillance, assessment and monitoring*. 2015.
41. El Oakley, RM, et al., *Consultation on the Libyan health systems: towards patient-centred services*. Libyan J Med, 2013. **8**.



MINISTERIAL CONFERENCE ON IMMUNIZATION IN AFRICA

www.ImmunizationinAfrica2016.org

 @africavaxconf | #MCIA16

Regional Immunization Action Plan for the Americas

Progress report 2015

Introduction

During the 54th Directing Council meeting of the Pan American Health Organization (PAHO) in September 2015, Member States approved a resolution to adopt the Regional Immunization Action Plan (RIAP) as the guiding framework for immunization in the Americas. The Plan aims to continue progress as well as identify and overcome immunization challenges currently faced by the countries of the Americas. The creation of the RIAP was the result of an extensive consultation process conducted among those involved in the Region's national immunization programs (NIPs), including immunization program managers, PAHO immunization focal points and other key partners.

The RIAP provides Member States with the rationale, guiding principles, general and strategic objectives and monitoring and evaluation frameworks to enable national immunization programs in the Region to align successfully with the Global Vaccine Action Plan (GVAP) and implement strategies to ensure that all citizens of the Americas will benefit from immunization through 2020 and beyond.

The strategic areas of the RIAP are: a) sustain the achievements; b) complete the unfinished agenda in order to prevent and control vaccine-preventable diseases; c) tackle new challenges in the introduction of vaccines and assess their impact; and d) strengthen health services for effective vaccine administration. In this last strategic line of action, the plan's approach emphasizes the integration of immunization with other primary care services, such as prenatal care, adolescent sexual and reproductive health, health of older adults, and the prevention of chronic diseases, such as liver and cervical cancer.

Monitoring and evaluating the RIAP will be conducted in accordance with PAHO's results based management framework, as well as its performance management processes. PAHO developed a monitoring and evaluation framework to assess progress against all indicators included in the RIAP. The framework includes an operational definition for each indicator, including its purpose and its units and the frequency of its measurement. PAHO Member States have committed to monitoring progress towards achieving the RIAP objectives, together with its National Immunization Committee. PAHO's TAG will then evaluate advances at the regional level and progress reports will be prepared annually for PAHO's Executive Management, as well as at the end of every biennium for PAHO's Governing Bodies. A final evaluation of the plan will be completed to determine the strengths and weaknesses of its implementation. The information needed will be obtained from the following sources: a) reports by the countries' ministries of health, b) PAHO-WHO/UNICEF's Joint Reporting Form on immunization (JRF), and c) the compilation of research and other available sources.

This report summarizes the Region's progress towards achievement of the objectives of the RIAP in the period 2014-2015 and also highlights challenges that will need to be overcome in the next year to meet the goals set forth by the plan. This report will be reviewed by the PAHO TAG and shared with Member States for their knowledge.

Progress by strategic line of action

Strategic Line of Action 1: Sustain the achievements

General objective 1.1 Maintain the Region's status polio free

In 2013, the World Health Assembly (WHA) adopted the targets, goals, and timelines of the Polio Eradication and Endgame Strategic Plan 2013-2018. This new strategic plan takes on a new side in the fight against polio, aiming to eradicate not only the wild polioviruses, but also to eliminate the vaccine-related polioviruses as well, both vaccine-derived and Sabin.

The plan called for the withdrawal of all oral polio vaccines (OPV), starting with the type 2 component of the trivalent vaccine (tOPV). Prior to the removal of the type 2 component of OPV, SAGE and TAG recommended that countries introduce at least one dose of the inactivated poliovirus vaccine. Between February 2015 and April 2016, all 32 countries in the Region of the Americas that previously used only OPV introduced at least one dose of IPV into their routine immunization schedule, and between 17 April 17 and 1 May, 2016, 36 countries in the Americas switched from the trivalent oral polio vaccine (tOPV) to the bivalent vaccine (bOPV) in a globally coordinated effort. The successful completion of the switch is a great milestone for global polio eradication and an important event that will go down in global public health history. This achievement is the result of a strong commitment from public health authorities, health workers both in the Region and globally and partner agencies like the World Health Organization (WHO), United Nations Children's Fund (UNICEF), Rotary, the Task Force for Global Health, United States Centers for Disease Control and Prevention (CDC), the Bill and Melinda Gates Foundation, among others. Even though some countries faced challenges throughout the process, such as the 7.8 magnitude earthquake that happened just days before the switch was planned in Ecuador, all countries maintained their commitment and fully completed the timeline of the global plan.

The Regional Containment Committee and PAHO Secretariat had received reports on advances in poliovirus containment following standardized methodology from 16 countries and the Caribbean sub-region (including 13 countries, 6 UK territories and 3 associate members). The reports were submitted between 1 January and 28 March 2016 and they were reviewed by RCC members and the PAHO Secretariat. At the time of revision, six country reports were pending: Bolivia, Costa Rica, Ecuador, El Salvador, Uruguay, and Venezuela.

The RCC received presentations from 8 countries that had reported infectious or potentially infectious WPV materials from Phase I of GAP II by March 2010. At that time, 224 facilities had infectious or potentially infectious WPV materials in those 8 countries as of March 2010. All countries providing reports demonstrated commitment to containment and have progressed significantly with Phase I of containment activities. Some countries provided very good examples of best practices, such as: strong political leadership, multi-sectorial engagement, technical commitment and leadership and collaboration with and active involvement of NCC in the review, analysis and submission of reports.

General objective 1.2 - Maintain elimination of measles, rubella and Congenital Rubella Syndrome

Declaration of the Elimination of Rubella and Congenital Rubella Syndrome in the Americas: On 22-23 April 2015, the International Expert Committee for regional verification (IEC)¹ for measles and rubella elimination in the Americas reviewed the epidemiological information presented by the Member States and determined that the Region had interrupted the endemic transmission of rubella. The last confirmed case of endemic rubella was reported on 3 February 2009 in Argentina, while the last confirmed case of congenital rubella syndrome was in a baby born on 26 August 2009 in Brazil. Genotype 2B was identified in the last endemic rubella outbreaks in Argentina and Brazil.

Advances in verification of measles elimination: The Region of the Americas met the goal of eliminating the circulation of the endemic measles virus in 2002. The secular trend of measles in the post-elimination period between 2003 and 2010 was relatively stable, with an annual average of 153 cases, either imported or linked to imported cases. However, between 2011 and 2015, major outbreaks in Brazil, Canada, Ecuador, and the United States resulted in 8-12 times more reported cases than in the preceding period. Nevertheless, the highest regional rate in 2014 (1.7 cases per million inhabitants) is lower than the five cases per million inhabitants established by the World Health Assembly in 2010 as a milestone for progress toward the goal of worldwide elimination.

Measles outbreak in Brazil: The IEC declared that endemic measles transmission had reemerged exclusively in Brazil, after an outbreak that lasted for more than 27 months. Brazil considered endemic measles transmission to have been interrupted as of 6 July 2015—rash onset of the last case—and presented the IEC with evidence of the end of the outbreak in December 2015. In July 2016, Brazil is expected to present the IEC with definitive proof of the absence of endemic transmission of the virus.

Declaration of the Americas as free of measles: Between April and June 2016, all the ministries of health of the Member States have submitted their national sustainability reports, with evidence that they have maintained the interruption of endemic transmission of this disease in their territories. These reports will be studied and, in due course, approved by the IEC members, who will declare measles elimination in the Region of Americas.

General objective 1.3 Maintain achievements reached in vaccine preventable disease control

Elimination of hepatitis B perinatal transmission Countries in the Region have focused on the prevention of perinatal transmission of hepatitis B mainly through routine childhood hepatitis B immunization. National vaccination policies including HBV for children <1 year of age are in place in all countries and most countries and territories have more than one decade of experience with childhood hepatitis B immunization. As of 2016, 20 of 51 countries and territories have introduced the universal birth dose vaccination policy and 14 countries and territories only vaccinate newborns born to positive mothers as part of their efforts to control HBV perinatal transmission representing ~80% of the birth cohort in the American region. Regional coverage in the Americas in 2014 for the third dose of hepatitis B vaccine (pentavalent) was 89% among children less than 1 year of age (with the lowest coverage in Haiti at 60%) and birth dose coverage was 80%.

¹ IEC is the equivalent of the Regional Verification Committee (RVC)

On May 13, 2016 the TAG assessed that Elimination of Mother-to-Child Transmission of Hepatitis B is feasible in the Americas by ensuring vaccination coverage equal or greater than 95% with one dose of Hepatitis B vaccine among all newborn babies within 24 hours of birth and with the third dose of Hepatitis B among children <1 year, respectively.

- The TAG supports that the PAHO Directing Council formally sets a goal for the elimination of MTCT of Hepatitis B by 2020.
- PAHO should establish a comprehensive plan to achieve the elimination goal, including strengthened surveillance and targeted sero surveys for all countries. The TAG recommends that PAHO provides special technical support to those countries with the highest prevalence of HBsAg and those which have not introduced yet the birth dose in their routine schedule, for example some countries in the Caribbean and Central America, among others.
- The TAG recommends that measures to eliminate MTCT of Hepatitis B be integrated with efforts to eliminate MTCT of HIV and congenital syphilis and with other maternal, neonatal and infant health initiatives.

Influenza: Countries have continued their efforts to sustain or increase influenza vaccine uptake among high risk groups especially among pregnant women while improving influenza surveillance and vaccination status documentation. Influenza vaccination is particularly challenging compared to other vaccines included in EPI schedules, due to the need for annual, optimally timed vaccination, the wide spectrum of target groups, and the limitations of the available vaccines. Since 2008, five additional countries/territories in the Americas have defined policies for seasonal influenza vaccination summing up to 40 out of 45. Twenty-five countries/territories have expanded target groups. Currently, 29 countries/territories target pregnant women for vaccination, the highest priority group according to WHO and PAHO/WHO's technical advisory group on vaccine-preventable diseases, compared to only 7 in 2008. Among 23 countries reporting coverage data, on average, 75% of adults ≥60 years, 45% of 6–23 months, 32% of 2-5 years, 59% of pregnant women, 78% of healthcare workers, and 90% of individuals with chronic conditions were vaccinated during the 2013-14 Northern Hemisphere or 2014 Southern Hemisphere influenza vaccination activities. Countries of Latin America and the Caribbean (LAC) have made significant progress in generating evidence for influenza vaccination programs. Since 2008, five tropical countries have changed their vaccine formulation from Northern to Southern Hemisphere and campaign timing to April-May upon analyzing national surveillance data. LAC countries have also used surveillance and EPI data to measure vaccine effectiveness and established an official network dedicated to evaluating influenza vaccines performance and impact.

Strategic objective 1.1 All countries make a commitment to vaccination as a priority for health and development

Countries and territories in the Americas are strongly committed to immunization as part of their national policies and plans to promote preventive health and universal health coverage. In 2015, all Member States counted immunization as a priority intervention and on average health authorities mobilized 99% of all vaccine financing from domestic resources. The majority of countries in the Americas have an active legal framework to ensure sustainable financing for immunization, in particular

vaccine procurement. Additionally, PAHO is working with a number of countries that are currently overhauling their legal frameworks for health and sanitary codes to include the right to immunization. Other countries yet have demonstrated strong commitment to immunization by continued strengthening of their national immunization technical advisory groups (NITAGs) that serve as an objective and transparent advisory body to national health authorities. As of 2015, 23 of 35 PAHO Member States reported an active NITAG and 16 of these committees meet the PAHO/WHO criteria for good operation.

Strategic objective 1.2 Individuals and communities understand the value of the vaccines

This year, countries and territories throughout the Western Hemisphere reached out to around 60 million children and adults during 14th year of Vaccination Week in the Americas (VWA), April 23-30th , delivering vaccines against diseases, including rubella, measles, diphtheria, mumps, whooping cough, neonatal tetanus, influenza, yellow fever, diarrhea caused by rotavirus, bacterial pneumonia, and human papilloma virus (HPV), among others.

Many countries also used VWA this year for community outreach, educational sessions on immunization for parents in health centers, and integrated efforts across health programs, including deworming, vitamin A supplementation, blood pressure and blood sugar screening, the vaccination of household pets, screening for domestic violence by social workers, Pap smears, HIV counseling and testing, breast feeding promotion, health education and dental care, among other activities.

The regional launch for this year's Vaccination Week in the Americas took place in Kingston, Jamaica on April 23rd, with participation from PAHO Director Carissa F. Etienne, Jamaican National Authorities, and partner agencies, followed by national and multinational launch events throughout the region.

Jamaican sprinter Usain Bolt, who holds six Olympic gold medals and 11 world championships, supported this year's Vaccination Week, appearing in PAHO-produced promotional messages, such as posters, social media messages, and in a public service announcement (PSA), in which he tells viewers, "I'm up to date on my vaccines. Are you?"

PAHO also did a social media campaign using the #GetVax and #GoForTheGold hashtags to encourage people to take photos holding #GetVax signs and post them to social media or to PAHO's website. A series of tweet chats were also held at the regional level and in countries to promote Vaccination Week and answer questions on vaccination.

Strategic Line of Action 2: Address the unfinished agenda in order to prevent and control vaccine-preventable diseases

General objective 2.1 Eliminate neonatal tetanus as a public health problem in all countries

In the Region of America, only Haiti has failed to reach the NNT elimination goal. The country has advanced substantially towards NNT elimination, however, putting in place activities designed to achieve this goal by the end of 2015. In addition to vaccinating pregnant women during routine immunization activities, three rounds of Td vaccination campaigns were conducted in Haiti's 140 communes to immunize all women of reproductive age, regardless of their previous vaccination status

in 2013, 2014, and 2015. Haiti also integrated NNT surveillance into acute flaccid paralysis, measles/rubella, diphtheria and pertussis case-based surveillance in 2013.

General objective 2.2 Meet vaccination coverage targets at all levels

According to the data reported by countries to PAHO in the PAHO/WHO/UNICEF immunization Joint Reporting Forms for 2015, coverage in the Region of the Americas for DPT3 and the third dose of polio vaccine in children under 1 year old, coverage was 91% and 92% respectively; and measles and rubella vaccination in children 1 year old was 93%. In 2015 the number of countries and territories reporting national average coverage of at least 95% with DPT3 in children under 1 year was 19, without difference with 2014. However, there is still inequality in immunization coverage, both between countries and within each country. In 2015, out of a total of nearly 15,000 municipalities of Latin America and the Caribbean, 8,456 (56%) reported vaccination coverage with DPT3 below 95%.

Strategic Objective 2.1 Immunization benefits extend equitably to all people and social groups

In order to train countries in the methodology for analyzing inequalities in immunization coverage, particularly those related to socioeconomic indicators, the Pan American Health Organization's (PAHO) Special Program on Sustainable Development and Health Equity and the Comprehensive Family Immunization Unit held a workshop in Santo Domingo, Dominican Republic with 6 countries of the Region. During the training there was highlighted that in addition to the need to maintain and/or improve rates of national immunization coverage across the Region, national immunization programs should also delve deeper into their data to make sure that coverage inequalities do not exist/persist sub nationally. To this end, actively monitoring the relationship between vaccination coverage and socioeconomic indicators can be a key tool to help inform targeted vaccination strategies. Additional work to expand and institutionalize the examination of socioeconomic inequalities and immunization coverage is currently being planned.

Strategic Line of Action 3: Tackle new challenges in the introduction of vaccines and assess their impact

General objective 3.1 Introduce vaccines in sustainable manner

Currently 34 countries and territories have introduced pneumococcal conjugate vaccine and 19 rotavirus vaccine in the routine vaccination schedule. In 2015, Argentina introduced the rotavirus monovalent vaccine and it is planning to introduce meningococcal conjugate quadrivalent vaccine in 2017. Argentina conducted a sub-national cost-effectiveness analysis on rotavirus vaccine introduction to provide evidence on the distributional health impact and cost-effectiveness across income and geographic groups. This study contributed to the decision to introduce the monovalent vaccine universally in the country.

Strategic objective 3.1 Decision-making is evidence-based and impact assessments ensure that policies are adopted to maximize the benefits of vaccination

PAHO countries and territories have progressively incorporated vaccine impact and cost-effectiveness data into the decision making processes for the adoption of new vaccines. Since 2004, more and more countries have requested support to PAHO's ProVac Initiative to assess the costs, health impact and

cost-effectiveness of new vaccine introduction. As of 2015, 29 country-led studies on the cost-effectiveness of RV (4), HPV (14) and PCV (11) had supported new vaccine introduction decisions in 20 countries. The process of conducting cost-effectiveness analysis and modeled vaccine impact analyses pre-introduction of a new vaccine has helped countries systematically review a number of evidence criteria for new vaccine introduction, including disease burden, costs of existing vaccine-preventable disease control and treatment, vaccine efficacy and vaccine type disease circulating in country, among others. In 2016, PAHO ProVac will expand existing toolkit to address new vaccine policy questions. Support for dengue vaccine introductions will be urgently needed in near term.

Since the introduction of pneumococcal conjugate vaccine and rotavirus vaccine, countries have been carrying out effectiveness and impact studies with technical cooperation from PAHO. In 2015, an impact study of pneumococcal conjugate (PCV) 10 valent vaccine on hospitalization and mortality in children less than 5 years old in Chile and Peru was finalized. An effectiveness study of PCV13 is ongoing and a protocol of a systematic review of the impact and effectiveness of PCV10 and PCV13 on hospitalization and mortality in children less than 5 years old in LAC was developed.

Strategic Line of Action 4: Strengthen the health services for effective vaccine administration

General Objective 4.1 Exceed the expected results proposed by the Post-2015 Agenda for reductions in infant mortality and maternal mortality

IM has been working in an inter-programmatic manner on maternal immunization. Maternal immunization has gained attention in recent years, and has the potential to leverage the antenatal care platform. It is a core component of the new immunization model, which transitioned from child immunization to immunization of the whole family. The establishment of a routine maternal immunization platform represents a new paradigm that includes the universal use of influenza, tetanus and pertussis vaccines and the use of other relevant vaccines in the near future is under consideration.

Maternal immunization refers to immunization prior to pregnancy, during pregnancy, and in the post-partum period (for both the mother and the newborn), in order to provide protection to the mother-child binomial. Maternal immunization has the potential to impact early childhood morbidity, and in some cases, mortality. Infections such as respiratory syncytial virus (RSV), influenza, and pertussis are associated with adverse outcomes in young infants – i.e. prior to commencement or completion of primary infant immunization series. Gains in reducing global childhood mortality have mostly been outside the neonatal period. Approximately 40% of global childhood deaths occur in the neonatal period. Many of these deaths are due to infections that can be prevented through existing or potential maternal vaccines.

To date, in all LAC countries, the tetanus-diphtheria-containing vaccine is recommended for all women of childbearing age; in 29 LAC countries influenza immunization is indicated for pregnant women; and, the pertussis-containing vaccine is indicated for pregnant women in 12 LAC countries. TAG recommends this vaccine in case of outbreak situations.

Strategic Objective 4.1 Supplies are available for the immunization program on a sustainable basis with national resources

The PAHO Revolving Fund (RF) continues to support most of the countries and territories in the Region (42) to access to quality vaccines and related immunization supplies, procured with national funds. The RF contributes to the financial sustainability of the immunization programs, ensuring countries and territories access to low and steady prices of vaccines. Starting in 2016, more countries, such as Honduras and Guyana, will be completely funding vaccines that were initially introduced with Gavi support. New vaccines (PCV, Rota, HPV) represent more than 60% of the total vaccine procurement budget of countries in the Region. In order to support the financial sustainability of the programs of PAHO's Member States, the RF has led efforts to reduce prices of these vaccines. Counting on the commitment, solidarity, and support from Member States during a negotiation process, the RF, with support of partners, reached agreements to reduce prices up to 35% with both HPV manufacturers. Now the focus is to reduce prices of PCV and Rota vaccines.

There are ongoing efforts to support countries to improve demand planning capabilities, including virtual meetings with EPI Managers and country offices to present an overview of the vaccine market challenges and opportunities, and review of past performance and preparation of appropriate demand plans. Plans to improve current approach on demand planning, including existing tools, are under development.

Strategic Objective 4.2 Strengthened immunization services are part of comprehensive, well-run health services

Dropout rate In the Americas Region 96% of children less than 1 year were immunized for DPT3 while 91% were immunized for DPT1 with an overall dropout rates of 6%. In countries such as Venezuela, Mexico, Dominican Republic, Panama, and Guatemala, the dropout rate was greater than 10%. The dropout rate is a measure of the strength of a health and immunization system, demonstrating its potential to reach children with the third dose in a series. Countries should define specific strategies to address factors that contribute to incomplete infant vaccination schedules.

Data quality Data quality is a constant challenge in ensuring reliable, high-quality vaccination coverage. In this sense, the countries of the Americas have strongly committed to consider activities related to data quality, which have been incorporated into their plans of action at the national level, as well as into monitoring at the sub-national level. Countries have also committed to evaluations at the national and sub-national level.

On the other hand, the countries of the Region of the Americas have been working towards implementing Electronic Immunization Registry (EIR) systems with the goal of improving data quality and program performance. The EIR is a useful tool for individualized vaccination monitoring, defining vaccination strategies through targeted reminders, supporting vaccination campaigns, providing timely access to information, among others. Five countries currently use EIR systems at the national level. The rest of the countries in the Region are implementing EIRs at the subnational level, developing their EIR or strengthening their paper-based information systems.

Cold chain Operations: Countries in the Region have focused on the expansion of the cold chain and strengthening the supply chain and logistics operations for the introduction of new vaccines. In the last two years, the Effective Vaccine Management assessment (EVM) has been conducted in four out of six GAVI supported countries (GUY, HAN, NIC and HAI). HON and NIC obtained high scores, 97% and 93% respectively, which at the moment of the assessment were the highest ranking scores globally. This is a significant achievement considering that 80% is the minimum score established by EVM. Also, at the time of the evaluation, Guyana achieved the third highest score reaching 83%. The EVM in Haiti was carried out by UNICEF. Member States continued using effective vaccine management (EVM) assessments to document strengths and weaknesses of immunization supply chains and translate their findings into improvement plans and actions to strengthen cold chain and supply chain systems. Guyana, Nicaragua and Honduras strengthened the temperature monitoring system using remote temperature monitoring and cloud-based technology. Nicaragua and Honduras carried out a temperature mapping of the cold rooms obtaining very positive results. Temperature monitoring studies are on going in Honduras and Nicaragua for strengthening the immunization supply chain.

Vaccine and supply stock management have been improved. 14 countries have implemented a WHO tool *Vaccination Supplies Stock Management (VSSM)*. Honduras and Mexico are using the Web based application (wVSSM). Honduras expanded its use of this application for all pharmaceutical items in the country including vaccines, diluents, injection equipment and medical equipment. This is a unique experience globally with implementation of this application since other countries and programs are using it only for vaccines and related supplies.

Implementation of GVAP in the EMR

Progress report



Implementation of GVAP in the EMR

Progress report

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, 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.

The EMVAP includes a monitoring and evaluation framework, the indicators of which are used to monitor implementation of the priority actions of the different strategic objectives as well as the progress towards achieving the goals of the EMVAP. 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 2017.

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:

- a. **Measles elimination:** Interruption of endemic measles virus transmission soonest possible and latest by 2020.
- b. **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
- c. **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)

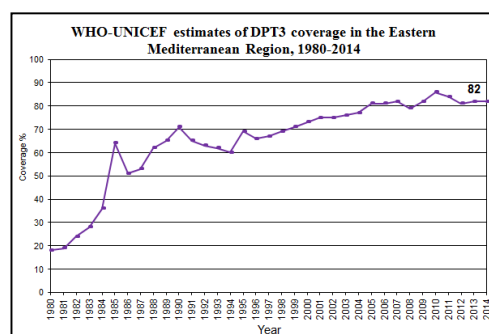
2. Current situation in the Eastern Mediterranean region

Goal 1: Routine immunization coverage

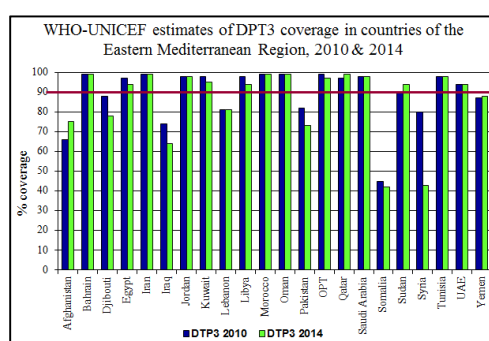
Since WHO launched the Expanded Programme on Immunization (EPI) in 1974, the Eastern Mediterranean Region (EMR) has achieved remarkable improvement in the routine vaccination coverage. Based on WUENIC, the regional coverage with the third dose of diphtheria/tetanus/pertussis-containing vaccines (DTP3) increased from only 18% in 1980, to 73% in 2000.

Significant achievement was observed in the decade after and 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 82% in 2014.

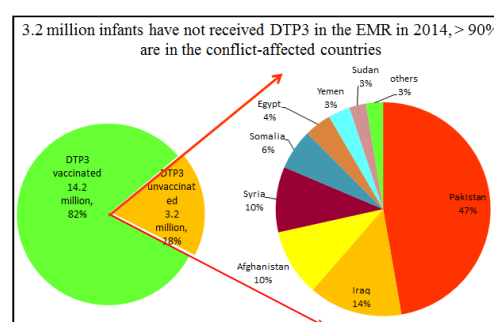
However, in view of the significant challenges facing the immunization programmes due to the internal conflicts and even active war in several countries, this slight drop could be considered a success rather than a failure.



In 1980, no EMR country among those with available data (16 countries) reported DTP3 coverage greater than 90% nationally and the coverage among those 16 countries ranged from 1% in Yemen and Sudan to 74% in Bahrain. By 2014, 64% (14/22) of the EMR countries met the GVAP target for national DTP3 coverage of 90% or more at national level. The prevailing geo-political situation in the region has resulted in a drop in vaccination coverage, slightly or remarkably, in some countries. The highest drop was witnessed in Syria and Iraq (coverage score card, annex 1).



3.2 million infants have missed receiving their third dose of DTP vaccine in the EMR in 2014, more than 90% 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. The governments' commitment in those countries and the population demand for vaccines should be underlined. 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 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

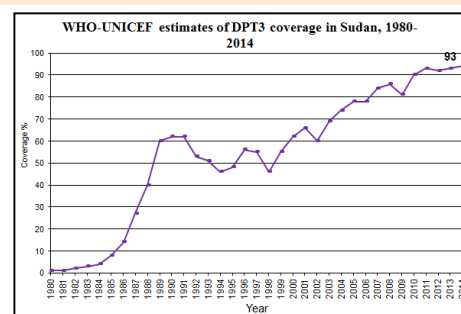
surrounding Syria, specially Jordan and Iraq, showed great response in provision of routine immunization to the Syrian refugees while addressing the countries' own EPI programme needs.

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

Government commitment and optimum utilization of partners' support: the case of Sudan

Routine immunization coverage in Sudan increased gradually since the launch of EPI. DTP3 coverage reached 62% in 1990 and remained fluctuating around this figure till 2002.

With the provision of GAVI cash support for the immunization system strengthening (ISS) and the improved managerial capacity of the programme, EPI in Sudan was significantly strengthened. The intensive implementation of Reaching Every District (RED) approach and the remarkable success in implementing outreach activities and defaulter tracing have resulted in increasing the number of DTP3 vaccinated children by one third. As a result, Sudan has achieved the GIVS goal of DTP3 coverage by 2010 and the coverage further increased to 94% by 2014.



Partners' support and its success in improving routine immunization coverage, has encouraged the government to allocate more resources to EPI, specially co-financing of new vaccines introduction utilizing GAVI support. Sudan has introduced Hepatitis B, Hib, (pentavalent), Rotavirus and pneumococcal conjugate vaccines in 2005, 2008, 2011 and 2013 respectively. In addition, Sudan has implemented nation-wide preventive MenA and yellow fever vaccination campaigns during the period 2012-2015. Sudan is going to launch introduction of MenA conjugate vaccine in routine immunization in July 2016 to be the first country to do so in Africa.

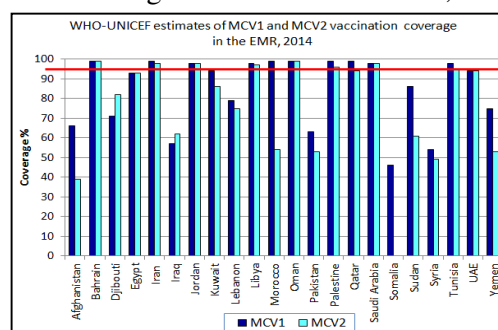
Goal 2: Disease elimination and control:

a. Measles elimination

In 1997, countries of the Eastern Mediterranean Region adopted measles elimination as a goal to be reached by 2010. To achieve this goal, the Eastern Mediterranean Regional Office (EMRO) developed a regional strategy with 3 main components: (1) conduct nation-wide measles catch-up vaccination campaign targeting wide age range; (2) achieve $\geq 95\%$ vaccination coverage with 2 doses of measles-containing vaccine (MCV) in all districts through routine immunization, supplemented by supplementary immunization activities (SIAs) where needed; (3) conduct high quality, case-based surveillance supported by national proficient laboratory.

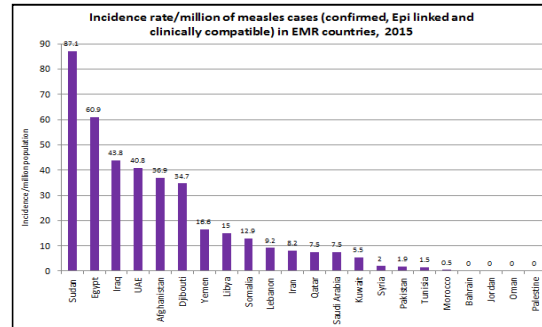
Countries of the EMR have been implementing the regional strategy for measles elimination with variable levels of success. Based on WENIC 2014, out of the 22 EMR countries, estimated MCV1 coverage was $\geq 95\%$ in 9 (41%), 90%–94% in 4 (18%) and $<90\%$ (range 46%–85%) in 9 (41%) countries. Of the 9 countries with $\geq 95\%$ MCV1 coverage, 5 (23% of all countries) reported $\geq 95\%$ coverage in all districts. In the same year, among the 21 countries with a routine second dose of measles vaccine, MCV2 coverage was $\geq 95\%$ in 7 (33%), 90%–94% in 4 (19%), and $<90\%$ (range 40–82%) in 10 (48%) (Coverage score card, annex 1).

During the period 2000–2014, >575 million people were reached through national or subnational SIAs. Out of these SIAs, 96 (46%) reached administrative coverage of $\geq 95\%$ at national level.



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.

Substantial progress in measles control has been made since EMR countries first resolved to eliminate measles. In 2015, 7 (32%) countries reported incidence <5 cases/ million populations, 4 of these countries have not reported any endemic measles cases for more than 3 years.



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 2011–2015, 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 increased >2-fold to reach 20,898 cases in 2015.

Achieving the target of measles elimination is challenged, mainly, by the current security and humanitarian situation in several countries and the unpredictable mass population displacements and resettlements that complicates the delivery of routine vaccination services and planning and implementation of SIAs. The inadequate visibility of the measles elimination target, the inadequate managerial capacity and the competing public health priorities in most of the countries are major challenges.

The inadequate financial resources to implement the planned SIAs, mainly due to the decrease of MRI funding to measles SIAs, had significantly contributed to delayed implementation of the SIAs and, hence, accumulation of the susceptible population. The restriction of funding of the follow up SIAs to the age group to 9-59 months, without considering epidemiology of the diseases, resulted in inadequate prevention and control of ongoing transmission and continuation of the outbreaks.

To prevent accumulation of susceptible persons and proceed towards measles elimination, efforts should focus on increasing routine MCV1 and MCV2 vaccination coverage and ensuring that routine immunization services and SIAs reach at-risk populations who reside in areas with poor access to vaccination services. Conducting SIAs in conflict settings and in areas with no local government requires establishing close linkages with local communities. In addition, coverage validation of all SIAs should be conducted to address coverage gaps in the SIAs and to ensure that appropriate planning for future SIAs is done. Monitoring and strengthening surveillance performance will help rapidly identify and characterize outbreaks, guide response activities, and provide evidence for refining elimination strategies. High level advocacy with the governments and partners, to increase visibility of measles elimination target and increasing allocation of necessary resources, is highly required

b. Maternal and neonatal tetanus elimination

The EMR has made substantial progress toward reaching the global goal of maternal and neonatal tetanus (MNT) elimination. However, 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. In 2014, 79% of EMR children were protected from neonatal tetanus at birth through maternal immunization. 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. As all the countries that have not achieved this goal in the EMR are Gavi eligible countries, financial support by GAVI might be a possible solution.

c. 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 with the following components:

- 1) Strengthening routine infant hepatitis B immunization:
 - Provision of a birth dose of Hepatitis B vaccine to all newborns within the first 24 hours of life
 - Increasing routine coverage with HepB3 to at least 90% and to complete the schedule during the first 6 months of life
- 2) Ensuring vaccine effectiveness
- 3) Advocacy and communication
- 4) Monitoring and evaluation of the vaccination programme and progress towards achieving the goal

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 2015, 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 sero-survey 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:

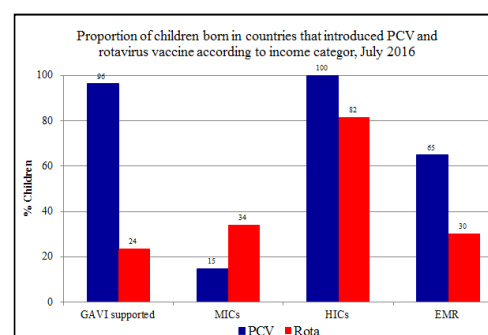
Introduction of the new life-saving vaccines witnessed remarkable progress in the EMR during the past few years. During the period 2011-2015, 33 new vaccines introductions in total have occurred in the EMR. So far, *Haemophilus Influenzae* type B (Hib) vaccine has been introduced in the national immunization 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 was delayed because of the global shortage of IPV. Sudan has completed the national campaign with meningococcal A conjugate vaccine (Men-Afri-Vac) and is introducing this vaccine in routine immunization programme by end 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 worth highlighting.

Prioritizing Immunization despite the Conflict: Libya allocates necessary Resources for Vaccination

After the Libyan revolution in 2011, and despite the conflict situation and the numerous challenges, the country has maintained high routine immunization coverage, with DTP3 coverage not dropping below 94% since the start of the conflict. The government has made large strides toward introducing new vaccines since the start of the revolution. PCV and rotavirus vaccine were both introduced at the same time in October 2013, a difficult task even under ideal situations. Six months later, Libya introduced IPV, as part of a combination vaccine, HPV, varicella (chickenpox) vaccine and a combination conjugate meningococcal vaccine that provides protection against four strains of meningococcus, including group A. As a middle-income country, Libya is not eligible for Gavi support and therefore must fully fund its vaccines and immunization system. The high cost of the new vaccines that Libya has introduced and the need to improve immunization delivery systems posed an additional challenge for Libya.

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. For example, children born in countries that have introduced Pneumococcal conjugate vaccine (PCV) is only 15% in MICs compared to almost 100% in the high income countries (HICs) and Gavi eligible countries. While high income countries can afford the cost and Gavi eligible countries are supported by Gavi, children borne in the MICs of the EMR continue to suffer from inequity in access to new vaccines.



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

The majority of the EMR countries are currently suffering, either directly or indirectly, from acute or protracted humanitarian emergency situation. In addition to the grave impact of the acute humanitarian emergency on the host countries, the massive refugee influx has resulted in overstretching of the health systems of neighboring countries.

The impact of the humanitarian emergency situation on the immunization programmes can easily be depicted by the fact that almost all EMR countries that have not achieved the GVAP target of routine immunization coverage are those affected by acute or protracted emergency situation.

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: the case of Yemen

The ongoing conflict and the political unrest affecting most of the governorates, the displacement of more than two million population and the acute economic crisis that Yemen has been facing for the last few years put the health system in Yemen on the brink of collapse which resulted in suspension of most of the basic services and in particular the vaccination services. Around 900 (one third) of the Health facilities and around 90 (one fourth) district vaccine stores are out of order while the functioning facilities faced major challenges with availability of fuel and electricity.

Despite these challenging circumstances, routine immunization coverage with the third dose of pentavalent vaccine (Penta3) in Yemen was maintained at 88% in 2014 and only slightly dropped to 84% in 2015. To achieve this success, outreach activities, with around 24,000 and 30,000 vaccination sessions had been conducted in the remote areas in 2014 and 2015 respectively, which contributed with around 28% and 33% of the total routine penta3 coverage in the same years.

Yemen was also able to conduct three rounds of polio NIDs in each of 2014 and 2015. Thanks to these preventive campaigns, Yemen was able to sustain the polio free status and prevent any importation under such difficult situation.

Yemen has also succeeded in implementing nation-wide campaign with Measles-Rubella (MR) vaccine in November 2014 when more than 11 million children under 15 years were vaccinated, reaching a coverage of 91% as per the post campaign coverage survey. Furthermore, amid the challenging circumstances, Yemen was able to smoothly introduce, in routine immunization programme, MR vaccine in February 2015 and the IPV in November 2015. Yemen was also able to sustain the use of other new vaccines in the routine vaccination programme, including, Hib, rotavirus and Pneumococcal conjugate vaccines.

These achievements were possible through concerted efforts spearheaded by WHO, effective coordination among partners which was attained through weekly meeting co-chaired by MoH and WHO and attended by UNICEF and some NGOs, active utilization of the Health Cluster forum to advocate for immunization, establishing functional immunization Operational Control Room at central and governorate levels, and, on top of all, the devotion and relentless efforts of the front line immunization workers. The effective uses of donors' resources, specially the GAVI support, and the effective distribution of roles and responsibilities among the different partners, were instrumental.



Reaching children with all routine vaccines in conflict affected areas in Syria: Accelerated Implementation of Routine Immunization (AIRI) in the hard to reach areas in Whole of Syria



Before the current crisis began, the immunization programme in Syria used to be strong. Syria was declared polio-free since 1999 and measles endemic cases reached zero level in the year 2011. Maternal and neonatal tetanus was eliminated in Syria since many years and all other VPDs did not constitute any public health problem.

With beginning of the conflict in 2012, vaccination rates for all antigens declined sharply and Penta 3 coverage was estimated at 41% in 2015. Routine immunization has stopped in areas outside government control, which, as a result, witnessed outbreaks of polio, measles, pertussis and mumps.

With cessation of hostility in Syria that came into effect on 27 February 2016, WHO and UNICEF in collaboration with the Ministry of Health, Syria, and other supporting partners and local NGOs, have agreed on conducting Accelerated Implementation of Routine Immunization (AIRI), through multi antigens vaccination campaigns, in the hard to reach areas that have been deprived from routine immunization since the start of the conflicts. AIRI are being implemented by the ministry of health, in collaboration with Syria Arab Red Crescent (SARC) in the areas accessible cross lines while in the areas accessible cross borders, Syria Immunization Group (SIG), consisting of local NGOs and partners, is taking the lead in implementation.

During the three rounds planned for the AIRI, every child born since the start of the conflict (all children <5 years of age) will be provided with three doses of Pentavalent vaccine (DTP-HepB-Hib), 3 doses of oral polio vaccine (OPV), 2 doses of measles-rubella (MR) vaccine, and one dose of inactivated polio vaccine (IPV). The first round of the vaccination campaign was implemented in April-June 2016.

Implementation of the first round of the AIRI was highly challenged by the shortage of fund required for the vaccine and operational cost in the areas accessible cross border. The continuation of the conflicts and the active war in some areas has resulted in postponement of the vaccination activities and reluctance of parents in those areas in taking their children to the health centers for vaccination.

Never the less, the significant support of the partners, led by WHO and UNICEF, and the high dedication of the local NGOs and health workers in implementation of the vaccination activities were behind the exceptional success in the areas that implemented the campaign cross border. Despite the challenge, independent post campaign monitoring, using card information or finger marking as indicator, proved that more than 90% of the children were reached with the age-appropriate vaccines during the campaign

3. Challenges facing achieving the immunization goals in the EMR:

- Security and humanitarian emergency situation in many EMR countries creates difficulties achieving the immunization targets. It affects implementation of planned activities, specially the outreach and mobile activities for improving routine vaccination coverage and implementation of supplementary immunization activities in several countries. It also significantly increases the operations cost of all activities.
- 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: the overall share of total domestic expenditure for the vaccination programmes has increased in most of the EMR member states with introduction of the new vaccines and implementation of disease eradication and elimination strategies. However, that expenditure has not reached the level sufficient for implementation of the strategies and activities necessary for achieving the global and regional immunization goals, specially with the financial requirements for implementation of the strategies related to measles/rubella elimination, MNT elimination and introduction of new vaccines
- Occasional 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)

4. 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, even under the severe economic constraints posed by the internal political change in several countries, and partners' support to the countries in high need is growing. More life-saving vaccines are available and more new ones are on the horizon. While children are the focus of routine immunization systems, more countries are introducing vaccines intended for adolescents and adults to benefit individuals throughout life and help reduce the burden of cancer and other major causes of deaths.

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 2014

Country	DTP1		MCV1			Drop-out	
	DTP1	DTP3	MCV1	MCV2	MCV1 95% in all districts	Drop out DTP1- DTP3	Drop out MCV1- MCV2
Afghanistan	82	75	66	39	No	7	27
Bahrain	99	99	99	99	Yes	0	0
Djibouti	93	78	71	82	No	15	-11
Egypt	96	94	93	93	No	2	0
Iran	99	99	99	98	Yes	0	1
Iraq	77	64	57	57	No	13	0
Jordan	98	98	98	98	No	0	0
Kuwait	97	95	94	86	No	2	8
Lebanon	84	81	79	75	No	3	4
Libya	96	94	93	92	No	2	1
Morocco	99	99	99	54	No	0	45
Oman	99	99	99	99	Yes	0	0
Pakistan	79	73	63	53	No	6	10
OPT	99	99	99	99	Yes	0	0
Qatar	99	99	99	94	No	0	5
Saudi Arabia	99	98	98	98	Yes	1	0
Somalia	52	42	46	NA	No	10	46
Sudan	99	94	86	61	No	5	25
Syria	65	43	54	49	No	22	5
Tunisia	98	98	98	95	No	0	3
UA Emirates	94	94	94	94	No	0	0
Yemen	94	88	75	53	No	6	22

DTP

≥90%
70% to <90%
< 70%

MCV

≥90%
70% to <90%
< 70%

Drop out

< 5%
5% to <10%
≥10% or negative DO



World Health
Organization

REGIONAL OFFICE FOR **Europe**

European Vaccine Action Plan (2015-2020)

2015
Progress
Report

Executive summary

The European Vaccine Action Plan (2015-2020) (EVAP) developed by the 53 Member States of the Region with the WHO Regional Office for Europe, immunization partners and stakeholders, has set the vision, goals and strategic objectives for immunization in the Region. In establishing and advocating for this course of action over the latter half of a Decade of Vaccines, EVAP contributes directly to the goals of the Global Vaccine Action Plan and the European Region's overall Health 2020 strategy. It stresses the importance of achieving the newly established Sustainable Development Goals 3 and 10 aimed at promoting health at all ages and reducing inequality.

Through concerted efforts, the countries of the Region maintained their polio-free status. Several countries introduced inactivated polio vaccine (IPV) into their routine schedules and began the process of laboratory containment of polioviruses in advance of the global switch from trivalent to bivalent oral polio vaccine planned for April 2016. Amidst this workload a vaccine-derived poliovirus outbreak in Ukraine placed millions of susceptible children at acute risk of contracting the disease and warranted an extensive response.

For the period 2012-2014, 32 countries demonstrated interruption of **measles and/or rubella** transmission – a significant achievement for such a large and diverse Region. The verification process for both of these diseases matured significantly, with new methods and advocacy strategies being applied to achieve elimination.

The Region developed **hepatitis B** control targets, priority activities and indicators. The targets and activities are to be incorporated into a Regional Action Plan on Viral Hepatitis to be endorsed by Member States at the WHO Regional Committee for Europe in September 2016. The next steps include establishing a Regional Verification Commission and defining the verification process.

Countries continued maximizing the benefit from recently developed vaccines for use in public health. The number of countries that have introduced **rotavirus, pneumococcal and human papillomavirus (HPV) vaccines** reached 15, 38 and 28 respectively, helping to tackle diseases that threaten life at all ages, from pneumonia in infancy to cancer in adulthood. Post-introduction evaluations were also held in Armenia, Azerbaijan, Georgia and Uzbekistan.

In national immunization programmes, **evidence-based decision making** was strengthened through the 42 national immunization technical advisory groups (NITAGS). In the context of competing public health priorities and a complex global market, countries also applied innovative methods to achieve **sustainable access to funding and vaccine supplies**. Immunization system strengthening efforts have contributed greatly to increased government budgets for immunization and self-sufficiency in procuring vaccines, particularly in the Region's middle-income countries.

Despite efforts, the 2015 regional measles and rubella elimination target was missed. The Region's polio-free status was threatened and several countries saw a resurgence of diphtheria and pertussis, which also exposed the unpredictability of vaccine supply in the Region. Middle-income countries (MIC) faced the most significant challenges, including issues with access to vaccine supply and affordable pricing, sustainable domestic financing and resource mobilization, as well as a growth of anti-vaccination sentiment and visibility. Furthermore, many of the Region's immunization programmes were challenged by an unprecedented influx of refugees, asylum-seekers and migrants in 2015 – which has taken a tremendous effort to address.

Collectively, the countries of the Region have come a long way in a short period of time. Whilst challenges remain, there is confidence that EVAP can prompt and harness political commitment, public interest and communicable disease risk perception, and maintain momentum towards Regional and global goals.

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 both the European health policy Health 2020 and the global Sustainable Development Goals. In 2014, the 53 Member States of the European Region adopted the European Vaccine Action Plan 2015-2020 (EVAP). In doing so, Member States made an unprecedented commitment to immunization as a priority, pledging to ensure political commitment and sustainable and predictable investment in immunization and to the achievement of six goals for the Region:

- 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 operational 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."

A highly effective and valued European Technical Advisory Group of Experts on immunization (ETAGE) in the European Region was engaged on EVAP development and is also playing an active role in advocating for EVAP and the goals and objectives therein. An EVAP Advocacy Strategy was developed and implemented throughout 2015 to support translation of EVAP to national immunization plans. Besides ongoing advocacy efforts, in line with the GVAP monitoring, evaluation and accountability process, a regional monitoring and evaluation framework for EVAP was developed and endorsed by ETAGE in October 2015.

The WHO Regional Office for Europe 2015 Progress Report provides an overview of the Region's progress towards the goals and objectives of the European Vaccine Action Plan 2015-2020 (EVAP). It considers the accomplishments of 2015 and the challenges that lie ahead to meet the Region's immunization targets. This report will be reviewed and endorsed by ETAGE prior to submission.

The Regional Office's external annual report Immunization Highlights 2015 is attached as Annex 1 to this report. Immunization Highlights presents the work of WHO in the Region over the calendar year.

Progress against EVAP Goals

EVAP goal 1: Sustain polio-free status

Target:

*2018: no wild poliovirus transmission re-established in the Region
(to be confirmed by the RCC at its meeting in 2019)*

ON TRACK

The European Region was declared free of endemic polio in 2002. Consistently high immunization coverage in all countries is crucial to keep the Region polio free. Countries also need sensitive surveillance systems and must be prepared to respond if a virus is detected.

In June 2015, the European Regional Commission for the Certification of Poliomyelitis Eradication (RCC) reassessed the European Region's polio-free status based on country reports for 2014. Although the Region was still considered polio free, the RCC classified three countries in the Region as high risk of poliovirus circulation in case of importation: Bosnia and Herzegovina, Romania and Ukraine.

Two months later, in August 2015, two cases of circulating vaccine-derived poliovirus were reported in Zakarpattya Oblast in southwest Ukraine, close to the border with Romania. After several years of conflict and interrupted immunization services in Ukraine, millions of under immunized children in the country were at acute risk of infection. The event was met with an immediate large-scale response by WHO and partners in support of national authorities. By the close of 2015 no new cases had been reported, two immunization rounds had been completed and the third round was conducted in late January 2016. Although implementation of the first two rounds progressed without major incident, uptake fell short of the 95% target.

As of 31 December 2015 no new cases had been reported in Ukraine. An outbreak response assessment report took place in April 2016. The outbreak will not be considered over until verification that transmission has been interrupted.

Polio outbreak simulation exercises (POSE) were conducted in Romania for representatives of Czech Republic, Hungary, Republic of Moldova, Romania and Slovakia, and in Kazakhstan for countries located close to the two remaining endemic countries of Afghanistan and Pakistan (Kazakhstan, Kyrgyzstan, the Russian Federation, China and Mongolia). In all cases, national outbreak response plans were reviewed and upgraded.

Laboratories of the Polio Laboratory Network in the European Region have performed consistently well over the past years. In 2015, 47 of 48 laboratories once again passed the WHO external quality assurance testing and were successfully accredited. In 2015, countries adopted a new algorithm for poliovirus isolation and intratypic differentiation that provides quicker laboratory results. A new web-based management system, including the possibility to generate laboratory accreditation reports and annual reports, was successfully tested in the Region and is expected to be implemented by all laboratories in 2016.

While remaining vigilant for possible importations, countries prepared for the globally synchronized switch from trivalent to bivalent oral polio vaccine (OPV) in April 2016. The switch affects 19 countries in the European Region that use OPV. Each country planned for the introduction of at least one dose of inactivated polio vaccine (IPV) into their routine schedules, securing sufficient and timely supply of IPV and bivalent OPV vaccines and destruction of all doses of trivalent OPV directly following the switch.

The countries of the European Region have one of the most expansive laboratory infrastructures in the world and contain a majority of the IPV manufactures. These facilities handle a large volume of highly concentrated wild polioviruses both in the public and private sectors. After the planned global cessation of all vaccination against polio, these facilities will be the only remaining source for potential re-introduction of polioviruses into the human population. To reduce this threat, the poliovirus containment initiative is advocating that Member States destroy the remaining virus stock or relocate it to facilities with the highest level of containment. In 2015 countries took part in an exercise to identify which countries and facilities will destroy or contain viruses in the future.

EVAP
Goal 1

Progress against EVAP Goals

EVAP goal 2: Measles and rubella elimination

Targets:

2015: interruption of endemic measles and rubella virus transmission for > 12 months, with high-quality surveillance in all countries

OFF TRACK/MISSED TARGET (to be confirmed by RVC in 2016)

2018: measles and rubella elimination by all countries verified by RVC

OFF TRACK (to be confirmed by RVC in 2019)

In 2010, countries of the WHO European Region recommitted to measles and rubella elimination and set 2015 as a target date. However, as concluded by the European Regional Verification Commission for Measles and Rubella Elimination (RVC) at its meeting held in October 2015, the regional goal of eliminating measles and rubella by 2015 has not been met.

The RVC assessed the measles and rubella elimination status of 50 countries for the period 2010–2014 and concluded the following:

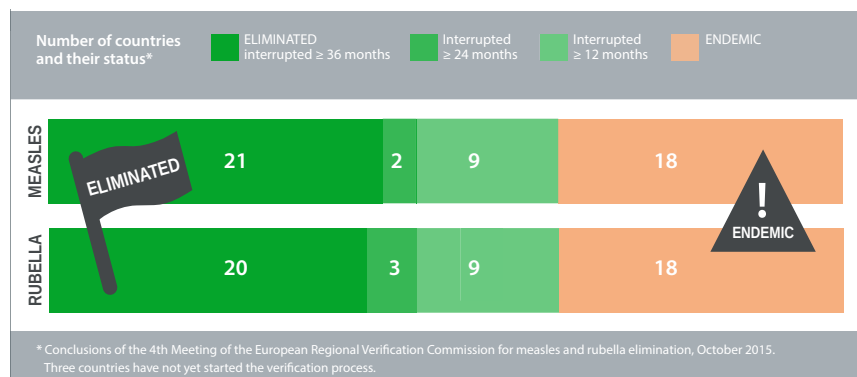
- For measles, 21 countries have eliminated the disease, two countries have interrupted transmission for ≥ 24 months and nine countries have interrupted transmission for ≥ 12 months. Eighteen countries remain endemic for measles.
- For rubella, 20 countries have eliminated the disease, three countries have interrupted transmission for ≥ 24 months and nine countries have interrupted transmission for ≥ 12 months. Eighteen countries remain endemic for rubella.

The number of reported measles cases was higher in 2015 ($n = 30,762$) than it was in 2014 ($n = 16,156$), primarily due to one large outbreak in Kyrgyzstan ($n = 17,779$). In 2015, 2468 cases of rubella were reported mostly from just a few countries. Cases were also reported among teenagers and young adults largely as a consequence of relatively recent introduction of universal rubella vaccine into the immunization programme.

Since 2013, a number of countries including Azerbaijan, Georgia, Kazakhstan, Kyrgyzstan, Turkey and the United Kingdom have conducted supplementary immunization activities in response to large-scale measles outbreaks.

The laboratories of the Measles and Rubella Laboratory Network in the European Region play a critical role in case-based surveillance and in the process of verification of elimination. In 2015, 71 network laboratories out of 72 confirmed their accreditation. Overall, reference laboratories tested 23,013 specimens for measles and 24,612 specimens for rubella. Among the 38 countries with confirmed measles cases in 2015, 28 reported measles strains genotypes, allowing a better understanding of viral molecular epidemiology. Rubella genotyping performance is still insufficient with only four Member States reporting viral sequences out of 22 reporting rubella cases. In order to increase the availability and the quality of genetic information for verification purposes, a new external quality assurance (EQA) programme for molecular testing was rolled out in 2015 by 34 national reference laboratories of the European Region.

Progress against EVAP Goals



Elimination of both measles and rubella is within reach. A refined verification process that promotes elimination at the country level, coupled with intensified efforts by health authorities and the agencies and partners mandated to support them, presents the European Region with a very real opportunity to achieve elimination of measles and rubella.

Progress against EVAP Goals

EVAP goal 3: Control hepatitis B infection

Target:

2016: establish regional hepatitis B control goal

2020: to be established

ON TRACK

Approximately 13 million people in the WHO European Region are chronically infected with hepatitis B, leading to approximately 60,000 deaths per year from hepatitis-B-related liver cancer and cirrhosis. As many factors contribute to hepatitis B, the prevention and control of this disease can only be tackled through integrated programmes.

In 2015, the Region initiated the development of a Regional Action Plan to prevent and treat viral hepatitis. The Plan to be launched in 2016 will include targets to be achieved by 2020 and specific activities to help Member States achieve the EVAP goal on strengthening hepatitis B control through immunization.

As of 30 December 2015, 47 of 53 (89%) countries in the WHO European Region have successfully implemented universal hepatitis B immunization. The Plan will focus on introduction of universal immunization in the remaining countries, increasing coverage with hepatitis B vaccine, and improving programmes to prevent perinatal transmission of hepatitis B infection. These steps will lead in the long term to reduction of incidence and mortality due

to acute hepatitis B, and consequences of chronic infection such as liver cirrhosis and hepatocellular carcinoma. Verification of achievement of hepatitis B control targets, which includes studies on prevalence of hepatitis B infection among vaccinated cohorts of children, will help measure the public health impact of hepatitis B vaccination and document programme success.

EVAP
Goal 3

Progress against EVAP Goals

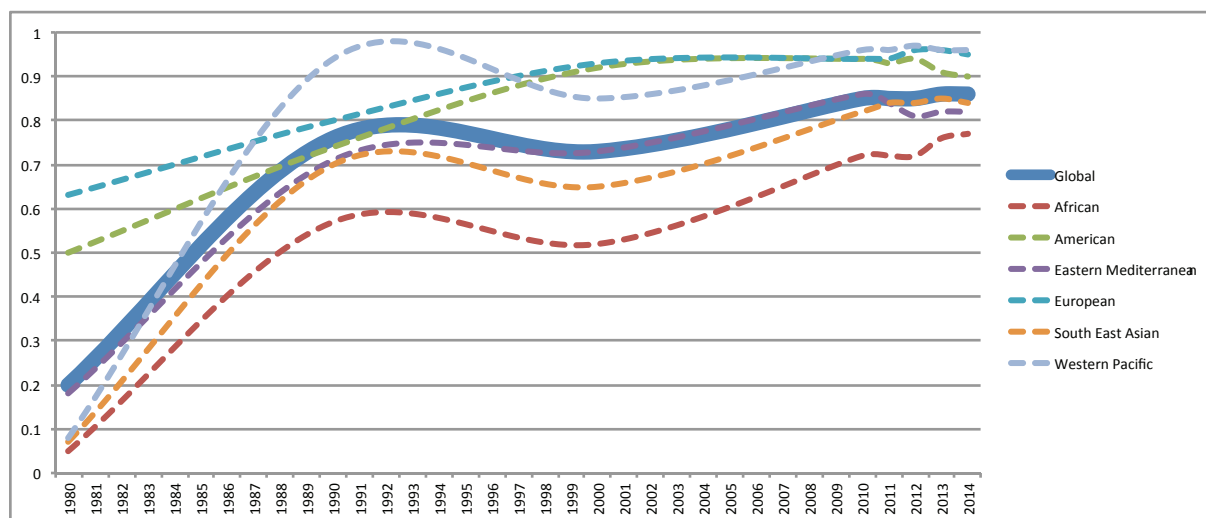
EVAP goal 4: Regional vaccination coverage targets at all administrative levels throughout the Region

Target:

2020: 48 out of 53 countries (90%) with $\geq 95\%$ coverage with three doses of DTP-containing vaccine at national level

ON TRACK

The countries of the WHO European Region are among the best-performing compared with other regions in the control of vaccine-preventable diseases (Fig.4). While estimated global coverage for the third dose of diphtheria-tetanus-pertussis (DTP)-containing vaccine among children aged less than 12 months was 86% in 2014, the average in the European Region was 95%. Similarly, coverage of Bacillus Calmette-Guérin (BCG –for protection against tuberculosis) was 91% globally and 94% regionally, and coverage with the first dose of measles-containing vaccine (MCV1) was 85% globally and 94% in the European Region.



When GVAP was adapted to the regional context, European Member States set the bar high, by establishing regional coverage targets that exceeded those of GVAP. The overall indicator for EVAP goal 4, for example, calls for 48 of 53 countries in the European Region to achieve $\geq 95\%$ coverage with three doses of diphtheria-tetanus-pertussis (DTP)-containing vaccine at national level. This target was set at $\geq 90\%$ for the global context.

¹ At the time of writing global estimates had not been verified and released. 09/06/2016

Progress against EVAP Goals

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

Target:

2016: 46 out of 53 countries (87%) have established a NITAG

2020: at least 90% of all countries with NITAGs have made an informed decision on a defined set of new vaccines, following the review of the relevant evidence by their NITAGs

ON TRACK

WHO recommends that countries base immunization policies on scientific recommendations made by a group of independent experts, who have reviewed all of the available evidence, including disease burden, vaccine efficacy and safety, programmatic feasibility and economic data.

By the close of 2015, national immunization technical advisory groups (NITAGs) had been established in 42 of the 53 Member States in the Region.

In 2015, recently established NITAGs continued strengthening their capacity in making evidence-based recommendations. For example, 10 NITAGs from middle-income countries based their recommendations on local evidence on disease burden obtained from strengthened surveillance. Four NITAGs evaluated economic evidence collected through country-based cost-effectiveness studies. Armenia and Republic of Moldova published results of impact studies which demonstrated high effectiveness of rotavirus vaccines in reduction of severe rotavirus gastroenteritis. These results provide important information on effectiveness of rotavirus vaccines in middle-income settings of the WHO European Region and will be used by NITAGs and national immunization programmes in other countries to support informed decisions and advocate for sustainable implementation of newly introduced vaccines.

The NITAGs continued building their capacities through participation in the Regional Immunization Programme Managers Meeting in Antwerp, Belgium and annual meetings of the European Technical Advisory Group of Experts on Immunization (ETAGE) and the Global Strategic Advisory Group of Experts on Immunization (SAGE). The NITAGs in Armenia, Belarus, Georgia and the Republic of Moldova evaluated their composition and functioning and developed improvement plans with support from the WHO Regional Office for Europe and the Supporting Independent Immunization and Vaccine Advisory Committees (SIVAC) Initiative.

Developing linkages between advisory bodies also contributed to improving the capacities of recently established NITAGs in making evidence-based recommendations on immunization policy and practice. In 2015, collaboration between NITAGs was facilitated through study tours and twinning activities, including a visit by NITAG members from Belarus and Georgia to the annual Netherlands NITAG meeting.

Improvised decision-making led to maximizing the benefits from recently developed vaccines for use in public health in countries of the European Region. The number of countries that have introduced rotavirus, pneumococcal and HPV vaccines reached 15, 38 and 28 respectively.

With funds from Gavi, the Vaccine Alliance (Gavi), WHO and immunization partners provided assistance to Gavi-eligible countries in decision-making, the application process for Gavi support, preparedness for new vaccine introductions, evaluation of introductions, and implementation of additional activities based on the results of evaluations.

Middle-income countries have not benefited from this support; consequently their capacities in evidence-based decision making and immunization advocacy are lower than in developing Gavi-eligible countries. The WHO Regional Office therefore provided additional support to middle-income countries in strengthening NITAGs, as well as in vaccine procurement, vaccine pricing and collecting evidence to support decision-making.

These activities will continue in 2016 and will be accompanied by strong advocacy for NITAG establishment in countries where they are still lacking, and for international support to ensure the financial sustainability of NITAGs in middle-income countries.

EVAP
Goal 5

Progress against EVAP Goals

EVAP goal 6: Achieve financial sustainability of national immunization programmes

Target:

*2020: at least 51 of 53 countries (96%)
(except two low-income countries as of 2012)*

ON TRACK

In 2015, 45 out of 53 Member States achieved financial sustainability in procuring vaccines. As reflected in the target for EVAP goal 6, six additional countries are expected to be financially self-sufficient for procuring routine vaccines by the end of 2020. Only Kyrgyzstan and Tajikistan will continue to receive donor support for vaccine procurement.

In order for Member States to improve the financial stability of immunization programmes, they have (with WHO support) developed multi-year plans for immunization, engaged in capacity building exercises and workshops and strengthened their evidence-based decision making. Armenia, Azerbaijan, Georgia, Kyrgyzstan, Tajikistan, Ukraine and Uzbekistan took part in a 3-day multi-year planning workshop in Copenhagen, Denmark, in April 2015.

The five countries that are in the process of transitioning from vaccine-related support from Gavi (Armenia, Azerbaijan, Georgia, Republic of Moldova and Uzbekistan) also developed and planned for the implementation and monitoring of transition action plans, supported by the WHO Regional Office. These transition plans address programmatic and financial challenges that Gavi-transitioning countries may face in sustaining immunization achievements after graduation.

Ring-fencing health care budgets and securing the necessary funding for immunization programme delivery and system strengthening has become necessary over recent years due to competing national budget priorities, competing health priorities, the financial recession and additional factors, such as the large-scale migrant influx to Europe. Through EVAP, national immunization programme managers in the Member States called for support to build capacity on resource mobilization and to be equipped with additional materials, data and information that would strengthen their ability to advocate for immunization domestically. Based on an extensive consultation process with Member States and partners, including an in-country consultation in Armenia and a workshop with nine national immunization programme managers, WHO responded by launching a support package during European Immunization Week in April 2015 comprising an advocacy workbook, an online advocacy library and a fully inter-disciplinary training package – delivered in 14 Member States during 2015. Next steps include the development of national advocacy and resource mobilization action plans, planned for 2016 with WHO in-country support.

EVAP
Goal 6

Challenges and opportunities: by EVAP Strategic objective

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

Political commitment to immunization is the basis for optimal performance and impact of an immunization programme. It is demonstrated through appropriate legislative frameworks at national level and integration of immunization plans into broader health plans and long-term budgets. Legislative provisions are of particular importance, hence WHO's upcoming work on providing normative guidance on the legislative context and environment within which immunization programmes must operate.

The 2015 Immunization Programme Managers Meeting in Antwerp, Belgium, brought 48 national immunization managers, NITAG chairpersons, international partners and donors together. On that occasion, a session was devoted to advocating and maintaining political commitment for immunization programmes as part of a series of sessions on EVAP objectives.

Despite the unanimous adoption of EVAP in September 2014, and the establishment of 42 NITAGS in the Region, a lack of commitment to some of the Region's immunization goals remains a challenge in the European Region. This is most often associated with competing priorities and a lack of capacity and resources.

Increasing domestic expenditure for routine vaccines per newborn is another strong indicator of a commitment to immunization as a priority. However, the Region is currently challenged in obtaining expenditure data beyond the UNICEF/WHO Joint Reporting Form (JRF). This has prompted a discussion of commissioning a study for better measuring against this indicator in 2016.

The annual European Immunization Week (EIW) initiative strongly promotes and supports countries in advocating for immunization. All 53 countries of the Region take part in celebrating immunization and over half of the Region's countries chose to emphasize the costs of prevention versus outbreak response and care in their week-long campaigns.

The migration crisis

The migration crisis that hit the European Region in 2015 pointedly demonstrated the need for high-level commitment to immunization as an integral part of well-functioning health systems. High immunization coverage is crucial, not just to protect long-time residents but also newcomers who may be more vulnerable to complications caused by vaccine-preventable diseases. Moreover, to equitably protect a country's population, culturally appropriate vaccination services and information must be offered to all, including refugees, migrants, international travellers and marginalized communities. The Regional Office provided technical support to the many countries coping with a sudden influx in refugees, and recommended that they incorporate vaccination of migrants into their routine vaccination programmes. In 2016 further support will be provided to strengthen the long-term delivery of inclusive, participatory, people-centred, non-discriminatory immunization services across the WHO European Region.

Challenges and opportunities: by EVAP Strategic objective

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

Control of vaccine-preventable diseases cannot be improved, nor sustained, if demand for immunization falters. To maintain public trust in and support for immunization, it is essential that accurate and reliable information on immunization is available and easily accessible to the public online. Furthermore, it is clear that communications and advocacy efforts need to be maintained and strengthened in all Member States to assure that informed decision-making remains commonplace amongst caregivers – regardless of their socio-economic or cultural background characteristics.

Georgia and Montenegro took the initiative to critically review their advocacy and communication activities in 2015. The report and recommendations developed were subsequently used for planning of future communications activities and training and as an advocacy tool to appeal for more resources for communications-related activities. Meanwhile, Kyrgyzstan and the Republic of Moldova followed up on similar reviews conducted in 2014, and established national immunization communication working groups, developed new information materials and initiated social media monitoring and engagement.

10th anniversary of European Immunization Week

All 53 Member States celebrated the 10 year milestone of European Immunization Week (EIW) in 2015. Taking stock of progress and also the challenges still ahead, EIW 2015 focused on maintaining commitment to immunization – at political, professional and personal levels. EIW messages were broadcast by traditional and social media and distributed through many settings, from ministerial conferences to patient waiting rooms.

Spotlight: EIW in the Republic of Moldova focused on national challenges related to immunization including declining vaccination coverage rates due to parental refusals, the consequences of re-emerging communicable diseases and the difficult task of securing sustainable funding for vaccines. A press club for media representatives featured journalists, bloggers and parents. Flash-mobs took place in Chisinau, on the Central Square and in the city's biggest mall. Parents heard about immunization benefits, how vaccines could prevent severe infectious diseases and protect the health and welfare of their children. Vaccination information leaflets were distributed, providing vaccination schedules and other useful information in Romanian and Russian, as well as pens and balloons with the EIW logo and slogan "Prevent. Protect. Immunize".

Challenges and opportunities: by EVAP Strategic objective

Real or perceived serious reactions to vaccination, unfavourable news reports or vaccine recalls significantly damaged public confidence in 2015. Many countries are not prepared to monitor, detect and recognize vaccine safety events and to manage the communications response that mitigates their impact on demand.

Growing awareness of the urgency to improve communication around immunization has led the WHO Regional Office for Europe to develop new approaches and materials (including situation analyses and simulation exercises) to support countries. With similar challenges threatening immunization programmes everywhere, there is considerable global interest to adapt the outcomes of this work for implementation in other WHO regions.

Restoring public confidence in immunization in Kazakhstan

In response to a large measles outbreak that began in 2014, Kazakhstan initiated a vaccination campaign targeting 1 million adolescents in February 2015. During the campaign, a number of incidents were mistakenly linked with the vaccine, creating great public concern about the vaccine's safety and temporary suspension of immunization activities. The country launched an intensive effort to re-establish trust among the public and the media before the campaign could be resumed. Kazakhstan health authorities, with WHO support, initiated an immediate thorough investigation and communication response. A causality assessment was conducted immediately and health authority managers and senior staff were trained to manage crisis communication with the public and the media. The Kazakhstan health authorities also developed a communication and social mobilization strategy for resumption of the immunization campaign and gathered 30 journalists at a roundtable for media training and sensitization to vaccine safety events, and for raising their awareness of the risks of measles and the safety and effectiveness of the vaccine. Thanks to these intensive and rapid response initiatives, Kazakhstan was able to resume the immunization campaign without further incident – reaching their target of over 90% coverage.

Challenges and opportunities: by EVAP Strategic objective

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

National immunization programmes should provide services to everyone to ensure that every individual can benefit from good health throughout the life course without the negative consequences of vaccine-preventable diseases.

In the European Region equitable access is measured by the percentage of districts with over 90% coverage with three doses of DTP-containing vaccine (Target for 2020: 48 out of 53 countries with at least 95% national coverage with three doses DTP, and all countries with 90% of districts with three doses of DTP). However, EVAP promotes that Member States go beyond this and assure that every individual in society should be eligible to receive all appropriate vaccines, irrespective of their geographic location, age, gender, educational level, socio-economic status, ethnicity, nationality or religious or philosophical affiliation. Member States should ensure that immunization policies are non-discriminatory and that the services are fully inclusive and user friendly, particularly for marginalized communities and minorities.

The Region was challenged in 2015 by variable commitment and understanding of the need and benefits of reaching underserved groups that have been identified in the Region, by investing in the operational research, including social research, that is needed to determine the causes of their inadequate access. Tools and approaches to identify susceptible populations, determine barriers to vaccination and implement new, evidence-based strategies or service delivery modification should be applied to

more people-centred immunization programmes, meeting the needs of underserved populations, including adolescents and adults not usually targeted by immunization programmes. Furthermore, the potential for integrated electronic immunization registries as a powerful tool for identifying unvaccinated and undervaccinated individuals and groups and for monitoring the success of immunization programmes is currently not adequately realized across the Region. The development and extension of such registries and their integration into broader health and social registries should be actively encouraged. The extent of implementation and appropriate use of electronic immunization registries in the European Region is not yet known. A road map that defines means of accelerated introduction of electronic immunization registries will be developed in 2016 to enable countries to benefit from the added value of immunization registries during the period covered by EVAP.

Challenges and opportunities: by EVAP Strategic objective

Tailoring immunization service delivery in the United Kingdom: the value of a people-centred approach

The United Kingdom implemented a Tailoring Immunization Programme (TIP) (WHO, 2013) project in 2014–2015 to address barriers to vaccination and improve vaccination coverage among the Charedi Jewish population (the ultra-orthodox) of North London. Four sub-studies were carried out over the year seeking to diagnose supply and demand barriers to immunization and to address four key issues: evidence of coverage in the community; evidence of disease prevalence in the community; evaluation of services provided at the community clinic; and segmentation and profiling of the population according to immunization uptake. In-depth parent interviews to provide detail to the findings were initiated and will continue in 2016. Insights gained have identified ways to tailor local immunization services. A community and stakeholder workshop, facilitated by the Regional Office, will be held in early 2016 to share findings, advocate for community services and consider additional responses.

The post-introduction evaluations of new vaccines conducted in many countries of Region revealed that the missed opportunities to vaccinate infants due to false contraindications are an important reason of delayed vaccination or non-vaccination of infants. General practitioners and other health care professionals recommend postponing vaccinations of infants with mild acute and chronic diseases because they believe that vaccination will negatively influence the disease progression and prognosis. To address this challenge, the WHO Regional Office in collaboration with a research team from University of Santiago de Compostela, developed training materials on vaccine safety and contraindications against vaccination. The main aim of the training is to provide medical doctors with information and evidence to increase their confidence in vaccines and improve their understanding of vaccine contraindications and precautions. The training materials, consisting of a series of presentations, case studies, videos, and a training manual, were piloted in Armenia, Azerbaijan, and the Republic of Moldova and were presented at the Regional Meeting of Immunization Programme Managers. The WHO Regional Office will publish these training materials and facilitate education of health care professionals in other countries by conducting regional training of trainers.

Challenges and opportunities: by EVAP Strategic objective

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

Among other links to strong health systems, immunization programmes rely on well-trained staff and laboratory-based surveillance of vaccine-preventable disease. Health care workers have significant influence over immunization behaviour, but their understanding of and commitment to immunization can be low and suitable training opportunities may be limited. In response to recommendations of ETAGE, the Regional Office together with the European Society for Paediatric Infectious Diseases (ESPID) initiated in 2015 development of training materials on immunization for continuous medical education. The online, interactive course called “Wiser Immunisers” takes a clinical approach, focussing on a range of vaccine-preventable diseases, vaccines, contraindications, communications and common misconceptions around immunization and vaccines. The ESPID course was piloted September to December 2015 and launched in English in April 2016. The next step will be to translate the materials into other languages and contexts.

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. With regard to measles and rubella elimination strategies, reference laboratories are requested to provide high-quality information in the annual report submitted annually by their respective National Verification Committees to the Regional Verification Commission to document not only laboratory investigation performance but also viral strains characterization.

To support high-quality genotyping of measles and rubella chains of transmission and provide stronger evidence for the verification process, a new external quality assurance (EQA) programme for molecular testing has been introduced in 2015. Thirty-four national reference laboratories participated in the first round, with 100%, 93%, 96.7% and 62.5% successfully passing the EQA for measles virus detection, measles virus genotyping, rubella virus detection and rubella virus genotyping, respectively. The new EQA allowed identifying gaps and training needs. Tailored approaches are being designed to address them in order to achieve better performance and increase the availability and the quality of genetic information for verification purposes.

Seven countries in the European Region participate in the rotavirus network, five of which have introduced rotavirus vaccine into their national vaccination schedules, and continue to monitor the vaccine’s impact. Five countries in the European Region participate in the global invasive bacterial diseases (IBD) sentinel surveillance network, which gathers standardized data related to bacterial meningitis in children under 5 years of age caused by *Haemophilus influenzae* type b, *Streptococcus pneumoniae*, and *Neisseria meningitidis*.

Challenges and opportunities: by EVAP Strategic objective

The immunization programmes are challenged by the dynamics of adopting new vaccines, expansion of immunization to adolescents, adults and risk groups, as well as by the growing public awareness to the quality and safety of administered vaccines. Therefore, the prompt detection, assessment of causes and response to adverse events following immunization (AEFIs) is essential in maintaining the trust and maximizing the benefits of immunization. Responding to the request of Ukraine Ministry of Health, a national workshop to build capacity on AEFI causality assessment was supported by WHO and resulted in developing a roadmap to strengthen AEFI surveillance in Ukraine. In addition, the Regional experience on managing anxiety related clusters of AEFIs was shared with the Global Advisory Committee for Vaccine Safety (GACVS) and contributed to identifying and addressing global policy and guidance gaps in preventing and managing such events.

Member States continued using effective vaccine management (EVM) assessments to document strengths and weaknesses of immunization supply chains (Kyrgyzstan, Romania, Tajikistan, Uzbekistan) and translating their findings into improvement plans and actions to strengthen national legislation, policy and operations. Georgia invested in the vaccine cold chain and expanded the cold chain capacity at the national and sub-national level. Armenia strengthened the temperature monitoring system in the immunization supply chain using cloud-based technology whilst Kyrgyzstan and Tajikistan were successful in developing and implementing standard operating procedures to support effective vaccine management. Regional best practice on vaccine management was shared with the global community: Armenia, Latvia and Turkey presented innovative approaches in organizing the immunization supply chain and using modern technology and information systems to monitor safe storage and distribution of vaccines at the Global TechNet meeting. In addition, Turkey, in cooperation with WHO and UNICEF hosted a documentation visit of a delegation from Democratic Republic of the Congo to the national vaccine store in Ankara, within the framework of the “South to South exchange” cooperation.

Sustaining integrated approaches in strengthening vaccine management practices through policy, regulatory frameworks, quality management systems and building synergies in roles and responsibilities of national immunization programmes and national drug regulatory authorities were debated by experts representing 17 Member States at the WHO sub-regional training workshop on institutionalizing best vaccine management practices, held in Ankara, Turkey, from 5 to 9 October 2015.

Challenges and opportunities: by EVAP Strategic objective

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

Competing demands on health budgets can negatively impact immunization programmes, while the risks associated with underfunding vaccines and immunization services are not always fully appreciated or understood. Although countries may allocate very large budgets to purchase new or additional vaccines, other components of the immunization systems may be grossly underfunded and under resourced.

Navigating the global vaccine market is a challenge for all countries, but especially difficult for those new to the self-procuring process or with small birth cohorts. Lack of transparency surrounding prices and procurement options inhibits competition and prevents countries from making informed decisions that will allow them to secure an affordable and sufficient supply of vaccines.

Responding to the resolution by the World Health Assembly on vaccine pricing, 28 Member States in the Region joined the WHO Vaccine product price and procurement (V3P) initiative and shared their vaccine price data, setting an example which was qualified by the Strategic Advisory Group of Experts on Immunization (SAGE) as a “success that can be the norm”. Furthermore, to facilitate access to the shared data and advocate for further vaccine price transparency, a regional report reviewing vaccine price data was produced, published and distributed to Member States. The report highlights vaccine price transparency opportunities and challenges, depicts large price variations and inequities by country income groups, and reviews the price implications of various factors, including procurement volumes, product presentations and formulations.

Global vaccine market changes on both the demand and supply side and vaccine shortages represent a growing problem for all WHO regions, the European Region being no different. In 2015, 28 out of 53 Member States reported facing vaccine supply disruptions related especially to IPV, BCG and pertussis-containing vaccines. The lack of advance information in regard to vaccine demand and supply, use of procurement and stock management mechanisms that are not aligned to address vaccine market risks, as well as rigid market authorization procedures at national level are, in some cases, standing in the way of timely product delivery.

A functional national regulatory authority is one of the most effective means of accessing to quality-assured vaccines. In 2015, five countries (Armenia, Azerbaijan, Georgia, Republic of Moldova and Uzbekistan) developed institutional development plans to strengthen their regulatory mechanism.

In 2015 many countries took steps to optimize procurement systems, improve monitoring of vaccine stock-outs through the annual WHO/UNICEF Joint Reporting Form, and participated in a regional survey investigating vaccine supply shortages for specific products. The Regional Office was actively involved in providing guidance to overcome supply shortages following requests from individual Member States (Bosnia and Herzegovina, Kazakhstan, Lithuania) as well as using broader platforms, such as European Union Health Security Committee meetings and ETAGE discussion. The subject was debated at the immunization programme managers meeting, as well as guidance having been provided through the sub-regional meetings, such as Vaccine procurement performance and accessing vaccine pricing information workshop in Copenhagen, Denmark on 16--18 December 2015 which was attended by experts representing national immunization programmes, budgeting units and units responsible for vaccine procurement from 11 countries.

Challenges and opportunities: by EVAP Strategic objective

The challenges facing middle-income countries (MICs): the rationale for an EVAP MICs strategy

Middle-income countries (MICs), many of whom 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. Evidence indicates that these countries are suffering from lack of adequate financial resource commitment to immunization due to competing priorities, have difficulty in accessing vaccines at affordable and optimum prices, significantly effected from global supply shortages for vaccines and facing difficulty in sustaining programme performance in part due to poorly researched access and hesitancy issues, and a growing anti-vaccine agenda and visibility. Whilst EVAP highlights these challenges and proposes solutions and priority activities to overcome, the Region is dedicated to move forward with development of a more cohesive strategy that addresses the challenges that the MICs are facing. Particular emphasis will be on mobilizing additional domestic resources and increasing efficient use of allocated resources to meet EVAP targets by 2020.

Annex 1.

Immunization Highlights 2015: a report by the WHO Regional Office for Europe

GVAP Implementation

WHO South-East Asia Region

Progress Report 2015

Introduction

Implementation of strategies to achieve Global Vaccine Action Plan (GVAP) in the South East Asia Region was continued successfully in 2015. Almost, all targets set for polio endgame plan for 2015 were achieved. Eight countries, in addition to Nepal that introduced Inactivated Polio Vaccine (IPV) in September 2014, introduced IPV in their National Immunization Programmes in 2015. The national plans for switching from tOPV to bOPV were prepared by all countries following the SEAR Immunization Technical Advisory Group meeting in August 2015 and countries were ready to carry out the switch activities in April 2016. Environmental Surveillance (ES) for polio virus detection is being carried out in India and Indonesia. While India and Indonesia extended ES to more sites, Bangladesh is planning to introduce an environmental surveillance site in Dhaka.

In alignment with the GVAP goal and the regional goal, the strategies for measles elimination and Rubella / CRS control are being implemented as planned and 10 out of 11 SEAR Member States established National Verification Committees for Measles Elimination.

Third dose of DTP immunization coverage in the Region increased from 84% in 2011 to 87% in 2015 (WUENIC 2016 revision). Pneumococcal Conjugate Vaccine (PCV) was introduced in Bangladesh and in Nepal. Myanmar planned to introduce PCV in April 2016. A SEAR network of drug regulators including vaccine regulators was created and collaborations were initiated between Indonesia and Nepal and between Bhutan & Thailand for strengthening of National regulatory Authorities (NRAs). In November 2015, with the establishment of the National Immunization Technical Advisory Group (NITAG) in Timor Leste the Region completed the establishment of NITAGs in all countries.

SEARVAP Goal 1: Polio free status is maintained

The WHO 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. Despite being polio-free for five years, all countries in the Region continue to be at risk of importation of the wild poliovirus from countries currently infected and of a subsequent spread of the virus within the Region.

Appropriate actions to mitigate the risk of spread of wild poliovirus following an importation are being taken by all countries in the Region. These include sustaining high population immunity against polio, maintaining quality surveillance for poliovirus detection, and having outbreak response plans in place to respond to any wild poliovirus importation if it were to occur.

An outbreak due to circulating vaccine derived poliovirus was reported in Myanmar in 2015. In response to this outbreak an aggressive response was undertaken jointly by the Minister of Health and partners. Countries in the region continue to be at risk of emergence of vaccine derived polioviruses as long as oral polio vaccine (OPV) is being used. A Polio Eradication and Endgame Strategic Plan 2013-2018 has

been developed by the global programme. One of the objectives of this plan is a phased withdrawal of OPV, beginning with the type 2 components, from all OPV using countries with the objective of mitigating the risk of paralysis associated with the use of OPV.

All countries of the Region prepared national plans for IPV introduction and the switch from tOPV to bOPV by end of 2015 as a part of the implementation of the Polio Eradication and Endgame Strategic Plan 2013-2018 and will have completed the switch and introduced inactivated poliovirus vaccine (IPV) by July 2016.

Actions for containment of polioviruses as per Global Action Plan III are ongoing. The Regional Certification Commission and National Certification Committees for Polio Eradication are fully functional in the Region and all 11 countries are providing oversight and guidance for polio eradication activities in the region.

Planning for transitioning the human resources and other polio assets in countries is being initiated to ensure that the polio networks and infrastructure can contribute to broader public health goals while maintaining the polio-free status in the region.

Progress in 2015

- **Surveillance & immunization performance** assessment regular feedback provided to countries and follow-up actions being coordinated
- **Polio SIAs** with tOPV conducted in 4(4 in 2015- India, Nepal, Myanmar, Timor Leste) SEAR countries with immunity gaps prior to the switch
- **OPV2 withdrawal (tOPV to bOPV switch):**
 - National Plans for switch from tOPV to bOPV prepared.
 - **IPV** introduced in 8 countries additional to Nepal (2014) . since the last ITAG meeting, The number of countries with introduction of IPV in the national schedule is 9;
 - **Environmental surveillance** expansion in India and Indonesia; initiated in Bangladesh;
- **Containment and certification:**
 - **Containment** activities progressing: identification of Sabin 2 materials progressing as per GAP III requirements
 - **RCCPE and NCCPEs** fully functional and active; RCCPE met in Sept 2015; NCCPEs have added additional responsibilities to their TOR - measles verification, switch validation

Progress country specific:

- **Bangladesh:**
 - Environmental surveillance initiated in Sept 2015; 1 localized mop up vaccination (tOPV) in high-risk areas bordering Myanmar outbreak area
- **India:**
 - 2 NIDs (tOPV) + 4 SNID and 1 mop up - (bOPV) vaccination in 2015 as per guidance from India Expert Advisory Group for polio; environmental surveillance expanded to additional sites
- **Indonesia:** (what about introduction of IPV in Bali)
 - Environmental surveillance expansion to additional site
- **Myanmar:**
 - 2 SIAs (tOPV), , conducted in December 2015 in response to cVDPV2 outbreak; surveillance strengthening efforts, including environmental surveillance initiation underway (2015- 2 SIA and 2016 3 SIA including NID)
- **Nepal:**
 - 1 SNID (bOPV) in 22 high risk districts and 1 SNID (tOPV) conducted in 14 as a part of coordinated emergency health response in 2015.
- **Timor Leste:**
 - 1 NID (tOPV, <15 yrs) in 2015, along with MR campaign

Key challenges

- The two manufacturers who supply IPV globally are facing technical difficulties in scaling up of the production, leading to a global shortfall of IPV, which is expected to continue through 2017. All countries in the SEA Region are affected and are facing difficult decisions in how to manage the shortfall.
- Funding from the Global Polio Eradication Initiative for polio assets (human resources, systems, and processes) is expected to decline from 2017–2019 and eventually stop, making it increasingly difficult to sustain activities to maintain polio-free status.
- Maintaining high-quality sensitive surveillance of Acute Flaccid Paralysis (AFP) will become increasingly difficult during the post-eradication phase as countries turn toward other priorities.
- Although containment activities have been agreed and are in process, decreased funding and the need to address other priorities may distract countries from completing poliovirus containment activities in accordance with the Global Action Plan III to minimize poliovirus facility-associated risk after type-specific eradication of wild polioviruses and sequential cessation of routine OPV

SEARVAP Goal 2: Elimination of maternal and neonatal tetanus is sustained

In the WHO South-East Asia Region, Maluku, North Maluku, Papua and West Papua provinces of Indonesia are the only remaining areas for validation of maternal and neonatal tetanus elimination. In 2015, India was validated for reaching MNTE for the whole country. Prior to India and Indonesia, Nepal, Bangladesh, Myanmar and Timor-Leste reached the elimination goal and were validated in 2005, 2008, 2010 and 2012, respectively. Bhutan, the Democratic People's Republic of Korea, Maldives, Sri Lanka and Thailand had already achieved MNTE before 2000.

To ensure that elimination is maintained countries ensure pregnant women are immunized against tetanus, high coverage is achieved with tetanus toxoid-containing vaccines in infancy and booster doses are introduced during childhood as appropriate. Maintenance strategies also promote good access to and use of clean delivery practices, contributing to better maternal and neonatal care. Quality NT surveillance to monitor maintenance of elimination status and identify areas where MNT is still occurring is required.

Progress in 2015

- Validation of Maternal and Neonatal Tetanus Elimination to be completed in the remaining 4 provinces of Indonesia
- District level risk assessments to identify low performing areas is ongoing

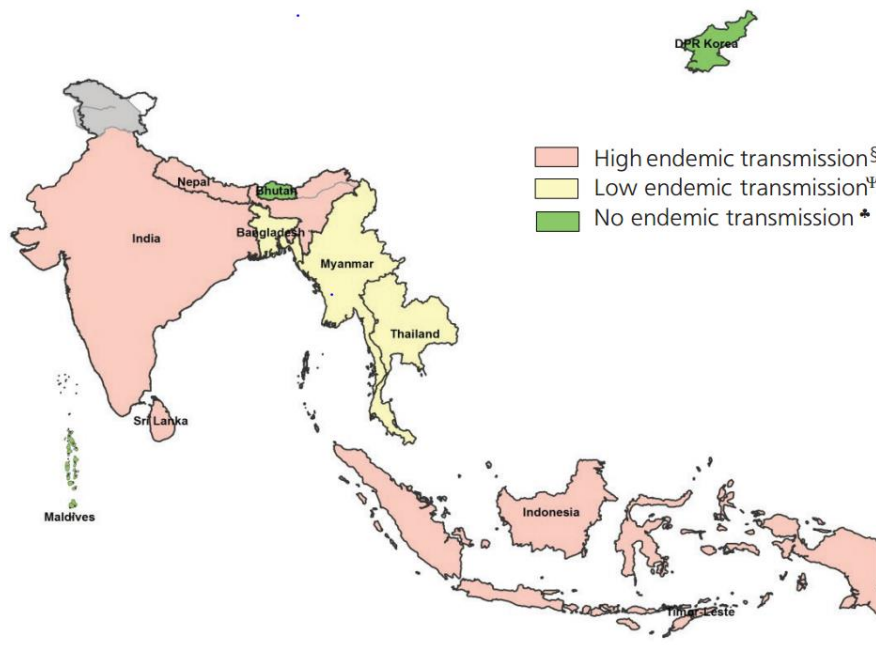
Key challenges

- 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 sub-optimal 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 national immunization programmes.
- Better overall maternal and neonatal care requires access to skilled birth attendants and clean delivery and cord care practices, both of which are out of the direct control of the immunization programme.
- Because NT cases are not often reported, it can be difficult to assess the quality of NT surveillance, and therefore difficult to monitor elimination status and identify areas where MNT is still occurring

SEARVAP Goal 3: Measles is eliminated and Rubella/CRS controlled

The 66th session of Regional Committee of the World Health Organization (WHO) South-East Asia Region (SEAR) in 2013 adopted the goal of measles elimination and rubella/congenital rubella syndrome (CRS) control[†] by 2020 following rigorous prior consultations^(i,ii,1iii).

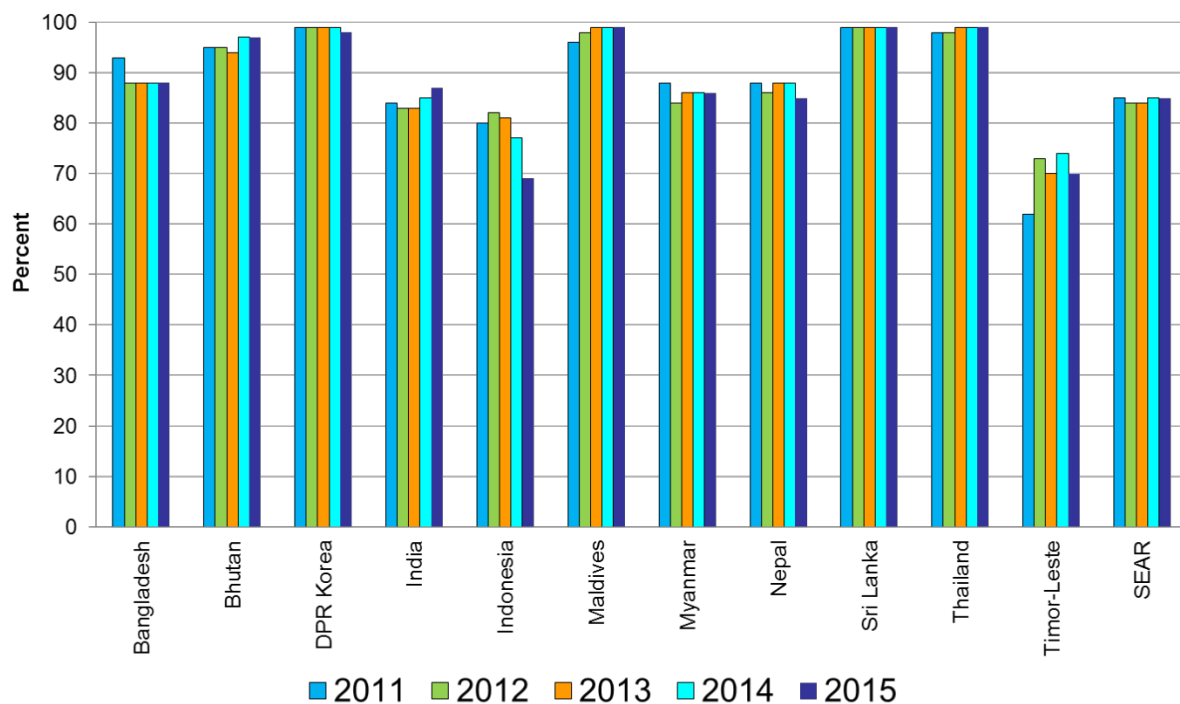
Figure 1 : Measles transmission status: progress as of December 2015



[†] Measles elimination is defined as the absence of endemic measles cases for a period of ≥ 12 months, in the presence of adequate surveillance. One indicator of measles elimination is a sustained measles incidence of less than one case per 1 million population. Rubella /CRS control is defined as 95% reduction in disease burden from the 2013 status

During 2003–2015, measles incidence decreased by 73%, from 59 to 16 cases per million population, first dose of a measles containing vaccine (MCV1) coverage increased from 66% in 2003 to 85% in 2015; MCV2 coverage increased in SEAR from 6% in 2003 to 71% in 2015 and an estimated 286 million children (93% of the target) were vaccinated in supplementary immunization activities (SIAs). Rubella containing vaccine (RCV) has been introduced in eight out of eleven member states as of 2015 and the remaining member states are in the process of introduction by 2018. The significant improvements in immunization coverage, case-based measles surveillance, and regional measles and rubella laboratory network over the past decade have prepared the Region to move forward towards the proposed goal of measles elimination by 2020 and rubella/CRS control/elimination. By end 2015, all countries in the Region have begun the activities needed to eliminate measles and many also are addressing rubella and CRS. Ten of eleven countries in the South-East Asia Region already have measles elimination goals with established target dates, as do five of six WHO Regions.

Fig 2. MCV1 coverage in SEAR, 2011-2015



WHO/UNICEF coverage estimates : July 2016 revision

All 11 South East Asia countries have begun reporting measles-rubella case-based data to the regional office. Measles/rubella surveillance in the Region is backed up by a WHO accredited network of nineteen national measles/rubella laboratories, two national reference laboratories and one regional reference laboratory with capacity of virus isolation and genetic sequencing including 13 sub-national laboratories under the oversight of the WHO accredited laboratory .

Progress in 2015

- National Verification Committees established in 10/11 countries (DPR Korea in process)
- National plans for measles elimination/rubella control available in 7 countries
- **Measles-Rubella vaccination**
 - 2nd dose of measles containing vaccine is a part of EPI schedule in all countries
 - Rubella containing vaccine introduced in 8/11 countries (India, Indonesia and DPR Korea remain)
- **Measles/Rubella/CRS surveillance**
 - Case-based surveillance initiated in all countries; weekly case based data received from all countries; India and Indonesia to expand case based surveillance after MR SIAs
 - Of the 39 labs in SEAR, 33 accredited, 3 provisionally accredited (1 each in India, Sri Lanka and Thailand), and 3 pending accreditation (1 each in Bangladesh, Timor Leste and India)
 - Lab capacity built for CRS surveillance in all countries
 - Revision of regional surveillance guidelines and indicators under process

Country specific Progress

- **Nepal:**
 - Post-earthquake report on immunization system strengthening including the MR catch up campaign shared during a high level 'lessons learnt workshop'
- **Sri Lanka:**
 - Evaluation of CRS surveillance conducted as part of EPI and surveillance review; findings to be presented (already completed)0. during 2016 ITAG meeting
- **Timor Leste:**
 - Efforts to build capacity of laboratory for MR diagnostics underway

Key challenges

- Achieving $\geq 95\%$ coverage of two doses of measles–rubella containing vaccine in routine immunization at national and sub-national level will require accelerated strengthening of routine immunization which is resource intensive and without precedent.
- Strengthening and expanding the laboratory-supported case-based surveillance nationwide and enhancing the sensitivity of the surveillance system will take time especially in big countries like India and Indonesia because a nationwide laboratory support for case-based surveillance will not be a feasible option until they conduct their wide-age range measles-rubella campaign, which will not happen before 2018. Until then, most cases will not be reported and adequately investigated.
- Securing adequate supply of MR vaccine may be difficult, as there is a limited number of WHO pre-qualified MR vaccine suppliers and they will require a sufficient lead time to meet demand from the SEA Region.

- Tackling reemergence in countries with no or low indigenous transmission (e.g., Bhutan and Sri Lanka both experienced recent outbreaks) is practically challenging, as large susceptible populations may have accumulated over a long period of time without regular supplemental immunization activities and only one dose of MCV.
- Securing sufficient global and national financial support to implement activities required for measles elimination and rubella control can be difficult in the face of other priorities.

SEARVAP GOAL 4 - Control of Japanese Encephalitis is accelerated

Four countries in SEAR i.e., India, Indonesia, Sri Lanka and Thailand have introduced Japanese Encephalitis Vaccine (JEV) in selected high risk areas as supplementary immunization activities (SIAs) followed by routinely for infants. Nepal, Sri Lanka & Thailand have expanded the JEV introduction nation-wide. DPR 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.

In 2014, Myanmar reported an outbreak of JE in Rakhine Province and introduced JE vaccine on a limited scale. The country now plans to introduce JE vaccine in selected high-risk areas with support from Gavi. Similarly, Indonesia recently re-established JE surveillance and is now ready to introduce JE vaccine on the island of Bali with Gavi support in 2017.

Bhutan and Timor Leste have already started conducting JE surveillance and Bangladesh plans to do so. In 2015 a total of 2,807 AES cases including laboratory confirmed JE was reported in SEAR. While 91% of AES cases were reported in India and Nepal, experts suspect that only about 10-20% of AES cases in those countries could be Japanese encephalitis.

Key Challenges

- JE/AES surveillance and laboratory-confirmation of JE cases are sub-optimal in all JE-endemic countries in the SEA Region except India and Thailand. The remaining JE-endemic SEA countries are still dependent on WHO support for laboratory test kits, and JE sentinel surveillance is carried out in some countries by WHO-supported surveillance systems.
- 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 VPDs.

SEARVAP GOAL 5 - Control of Hepatitis B is accelerated

All countries in the SEAR with the exception of Thailand provide 3 doses of HepB as part of the pentavalent vaccine schedule. Thailand provides the tetravalent vaccine. The overall HepB3 coverage in the Region increased from 53% in 2010 to 87% in 2015. Although HepB3 coverage is reported to be >90% in seven countries (Bangladesh, Bhutan, DPR Korea, Maldives, Nepal, Sri Lanka, Thailand), it does not yet reach these levels in India and Indonesia which account for the largest births cohorts in the region. Myanmar and Timor-Leste estimated HepB3 coverage of 75% and 76% respectively in 2015. Regional HepB3 coverage had increased from 4% in 1992 to 87% in 2015.

DPR Korea, Maldives, and Thailand have reported HepB- BD coverage >95% since 2010. Bangladesh, Myanmar, and Nepal do not provide a HepB BD and have very low rates of deliveries in health facilities or deliveries attended by skilled health personnel. Sri Lanka also has not introduced Hepatitis B birth dose as perinatal transmission considered to be low and institutional deliveries by skilled birth attendance is >95%.

Progress in 2015

- HepB3 coverage has increased in the Region from 53% in 2010 to 87% in 2015.
- HepB3 coverage is estimated to be >90% in seven countries (Bangladesh, Bhutan, DPRK, Maldives, Nepal, Sri Lanka, Thailand).
- Among the seven countries that provided birth dose of HepB in their vaccination schedule in 2015, coverage was <80% in two (Bhutan at 78% and India at 44%¹), between 80-95% in one (Indonesia), and >95% in three (DPRK, Maldives, and Thailand).
- Timor Leste planned to introduce the HepB birth dose in January 2016

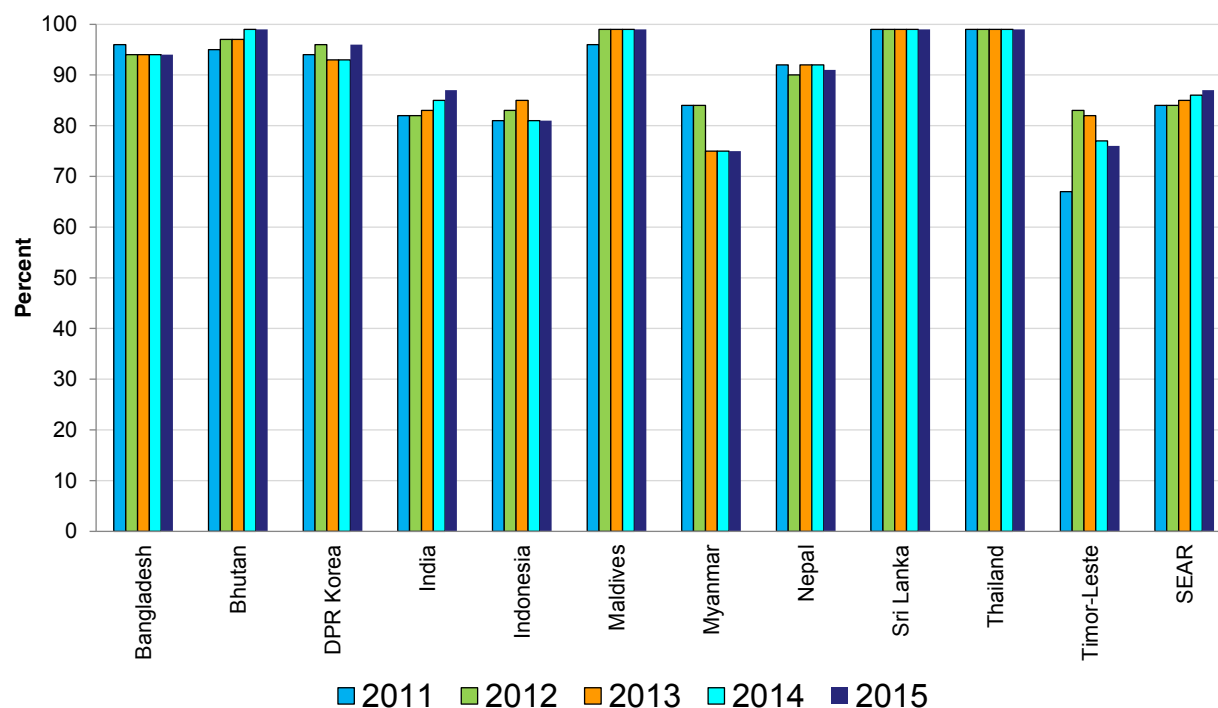
Key challenges

- Countries that lack prevalence and surveillance data on hepatitis B have difficulty in prioritizing the disease and marshalling sufficient political and financial support for its control.
- High immunization coverage for the birth dose of hepatitis B vaccine has not been attainable in countries where home and unskilled birth attendance is the norm.
- Monitoring private-sector immunization with the hepatitis b birth dose requires new systems for communication and data sharing between private providers and the government.

SEARVAP Goal 6: Routine immunization systems and services are strengthened

National level routine immunization coverage measured as DTP3 coverage shows that most countries are achieving and sustained >90% coverage at national level since 2011; out of these Bhutan, DPR Korea, Maldives Sri Lanka and Thailand for more than a decade (see Fig 1). More importantly, this Region is an important vaccine manufacturing hub that exports high quality vaccines worldwide.

Fig 4. DTP3 Coverage in SEAR, 2011-2015



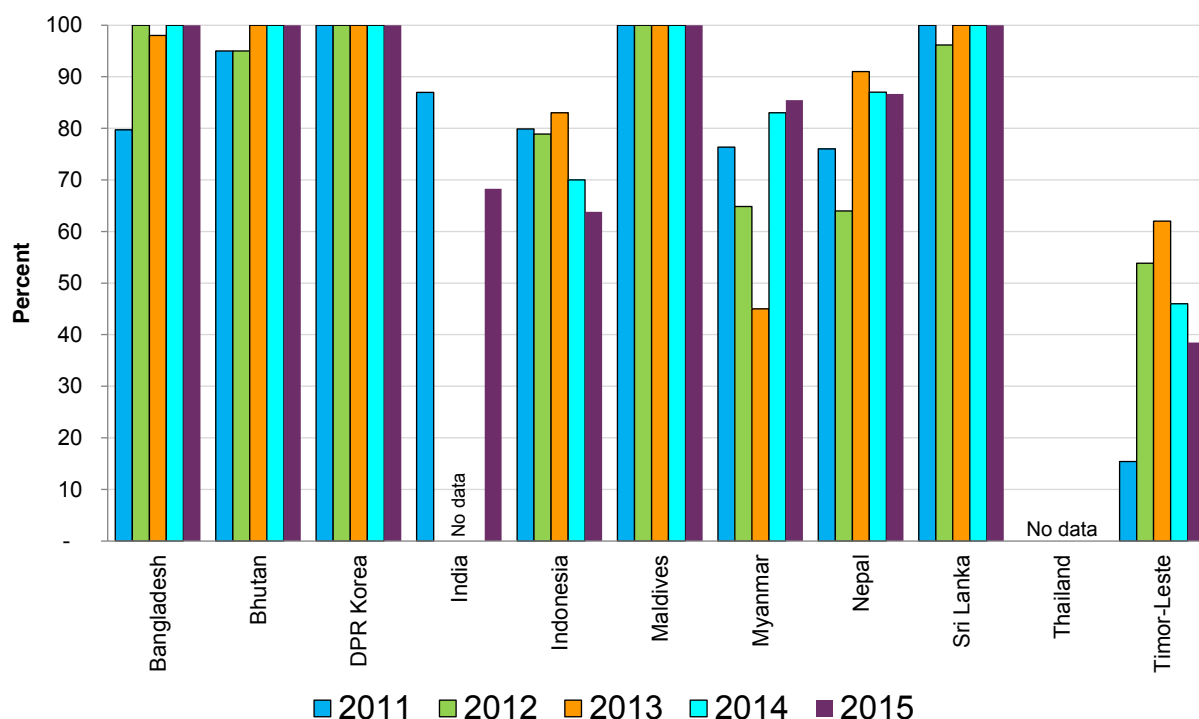
WHO/UNICEF coverage estimates: July 2016 revision

With maturation of the programmes, there has also been increasing attention to issues of vaccine safety and regulation, greater reliance on routine vaccine delivery strategies, and adoption of a life-course approach to extend the benefits of immunization. Innovative work has been done in countries of the Region to develop and evaluate strategies to reach high-risk populations and to introduce new vaccines. 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.

Despite these achievements, there are also challenges. Although vaccination coverage at the national level is relatively high, inequitable access to immunizations remains a major problem in some countries, with significant coverage gaps between the highest and lowest socioeconomic quintiles. It is estimated that in the SEA Region countries, about 6 million infants do not receive routine vaccines from their national immunization programmes and in several countries, the coverage levels at provincial/district

vary greatly with many of these lower administrative units yet to reach 80% coverage. The low reliability of reported administrative vaccination coverage data in many countries has not been resolved and deprives programmes of an essential monitoring tool. Only seven countries of the Region have all districts achieve $\geq 80\%$ DTP3 coverage (see Fig 3).

Fig 5 Proportion of districts with $\geq 80\%$ DTP3 coverage, SEAR, 2011 – 2015



Source: WHO/UNICEF JRFs multiple years

- (1) Bangladesh achieved DTP3/Penta3 national coverage of 94% in 2015. Bangladesh continues to maintain the regional and global goal of pentavalent 3 coverage targets (90% national and more than 80% in all districts). The country targeted 32 districts and four city corporations for intensification of routine immunization (IRI) in 2012 with a number of intensification activities. Since then, regular district- and sub-district-level review meetings have been held; additional vaccine transportation costs provided to hard-to-reach areas; every child has been tracked using tally sheet/registration book mentioning names and detailed addresses and listing all drop-outs; training courses for middle-level managers and on data quality strengthening and adverse events following immunization (AEFI) refresher training were provided; and the number of selected IRI districts with more than 90% pentavalent 3 coverage has increased from 25 in 2011 to 33 in 2014.
- (2) India has achieved DTP3/Penta3 national coverage of 87% in 2015. The country also established an Immunization Technical Support Unit (ITSU); set up a task force for immunization in 28 out of its 35 states; and launched “Mission Indradhanush” – a major multi-phase campaign which aims to boost routine immunization under which 3.7 million children have been fully immunized and 3.6 million pregnant women vaccinated in phases. This equity-based mission applied the range of polio strategies and assets to focus on identified high-risk populations in traditionally low-coverage or underserved areas with insufficient health services in 201 high-priority districts in

phase I, 352 medium-focus districts in phase II and 216 high-focus districts in phase III (which is ongoing). More than 1 million frontline health workers in different categories have been trained.

- (3) Indonesia has achieved DTP3/Penta3 national coverage of 81% in 2015. Also in that country, a new comprehensive multi-year plan (cMYP) 2015–2019 has been developed in 2015; new middle-level managers were trained at the national level and sub-nationally in 36 districts; local area monitoring was strengthened; a new communication plan for immunization was developed.
- (4) Effective vaccine management (EVM) assessments were done in 17 provinces and at the national vaccine store, and its recommendations are being implemented. East Java province has conducted drop-out follow-up (DOFU) activities in areas with low coverage (<80% DTP3) in select villages of 60 districts in 18 provinces with a total of 7646 villages targeted. A total of 151 217 children under the age of one year were targeted in 2015 alone and 130 102 of them were reached (the coverage achieved in these villages being 86%). AEFI refresher trainings were conducted for all provincial staff and an e-learning training course on AEFI has been developed in the Bahasa Indonesia language.
- (5) Myanmar achieved DTP3/Penta3 national coverage of 75% in 2015. The country has prepared annual work plans for immunization which identify new approaches such as integrating immunization service in all hospitals, developing township-level operational annual work plans, strengthening capacity of health staff through trainings on different subject areas, strengthening training centres (developing training packages, physical infrastructure and trainers), strengthening data management at all levels with communication, social mobilization and cold chain improvement plans.

Progress in 2015

- **The DTP3 coverage of the Region reached 87% in 2015**
- **India the country with the largest birth cohort – 27 million reached a DTP3 coverage of 87% in 2015- by concentrating on hard to reach populations with highest level of advocacy**
- **A Coverage evaluation survey was conducted in 31 districts of Indonesia**
- **Sub-national coverage data being received from 10/11 countries (except Thailand)**
- **Feedback on data quality was provided to all countries on ongoing basis; detailed feedback on Joint reporting form (JRF) and Annual EPI form (AERF) provided on annual basis**

Key Challenges

- Some countries in the Region lack adequate numbers of frontline health workers with appropriate training to administer vaccines (REF). Countries may also inappropriately deploy human resources, thus limiting NIPs from achieving programmatic goals (REF).
- A few countries in the Region are still dependent on external funding for their routine national immunization programmes and lack sufficient and sustainable funding to carry out routine immunization activities

SEARVAP Goal 7: Introduction of new vaccines and related technologies is accelerated

All countries of the SEA Region have introduced hepatitis B (HepB) vaccine in the infant immunization schedule. Hepatitis B Birth Dose have been introduced in Bhutan, DPR Korea, India, Indonesia, Maldives, Myanmar, Thailand and Timor Leste, and ten out of eleven countries except Thailand have introduced *Haemophilus influenzae* type b (Hib) vaccine. In four countries (India, Nepal Sri Lanka and Thailand) the SA-14-14-2 Japanese Encephalitis vaccine has been introduced and in Bhutan human papillomavirus (HPV) vaccine has been introduced. In 2015, eight countries introduced IPV. Bangladesh Nepal introduced pneumococcal conjugate vaccine and Myanmar and Nepal introduced Rubella vaccine

Table 1. Introduction of new vaccines in South East Asia Region, as of December 2015

	Hep B	Hib	HPV	PCV	IPV	Rubella	Mumps	aTd	JE	ROTA
BANGLADESH	2003	2009		2015	2015	2012				
BHUTAN	1997	2009	2010* National		2015	2008				
DPRK	2003	2012			2015					
INDIA	2002	2011			2015				2007	
INDONESIA	1997	2013			2016					
MALDIVES	1993	2013			2015	2006	2007	1985		
MYNMAR	2003	2012			2015	2015				
NEPAL	2005	2009		2015	2014	2015			2007	
SRI LANKA	2003	2008			2015	1996	2013	2001	1988	
THAILAND	2008?		2014		2015	1986	1997	2015	1990	2011
Timor Leste	2007	2012			2016					

Progress in 2015

Pneumococcal Conjugate Vaccine was introduced in Bangladesh & Nepal in 2015

Surveillance for Rotavirus gastroenteritis, invasive bacterial vaccine-preventable diseases (IBVPD)

- Timely, case based data reporting from all sites conducting rotavirus & IBVPD surveillance with WHO support
- Surveillance network sites in India generate local evidence and they were encouraged to share data & participate in SEAR network activities
- Gavi HSS grants are used for strengthening immunization information systems

Human Papilloma Virus infection

- In countries preparing for HPV introduction i.e Bangladesh & Nepal developed coordinated and comprehensive strategies for cervical cancer prevention
- Sri Lanka developed plans to collate evidence on disease burden & cost-effectiveness

Key Challenges

- Several countries in the SEA Region have delayed or declined new vaccines introduction because of the long-term sustainability implications to national budgets. Even countries eligible for Gavi support for at least five years post introduction have struggled to justify the costs of the new vaccines. These countries are missing out on the opportunity to add new antigens to their national immunization schedules.
- Countries lack reliable disease burden information on which evidence-based decisions can be made to introduce a new vaccine. Countries need to strengthen their VPD surveillance and make special efforts to generate disease burden information and economic analysis for priority vaccine-preventable diseases.

SEARVAP GOAL 8 – Adequate production and availability of safe and effective vaccines is ensured

Current status

Three of the eleven countries of the SEA Region are vaccine producing nations. The National Regulatory Authority (NRA) and the National Control Laboratory (NCL) in these producing countries must meet all WHO required regulatory functions to oversee safety, quality and efficacy of vaccines and must be assessed functional to maintain their vaccines in the list of WHO PQ vaccines.. At present three countries (INO, IND, THA) who are vaccine manufacturing countries have their NRA assessed functional by WHO. In addition, Bangladesh has established significant vaccine manufacturing capacity with the potential to supply the UN market. As an example, Bangladesh is positioned to manufacture Cholera vaccine for the UN supply addressing a global shortage situation. Currently, as of January 2016, the NRA is not in compliance with the WHO indicators for NRA functionality. A significant investment in capacity building is needed to achieve functionality. SEARO together with HQ and international partners will contribute to the capacity building of the NRA. In addition, SEARO in collaboration with HQ and other partners will provide support to establish manufacturers in Bangladesh to develop and manufacture vaccines of assured quality, safety and efficacy for the national and international market.

All countries in the Region have AEFI surveillance systems in place and a national AEFI Committee that guides the investigation and the management of AEFIs when they occur. These AEFI Committees however are at different levels of capacity to conduct causality assessments. There is a need to continue to support such committees to further strengthen their capacity to investigate and conduct scientific causality assessment so that AEFIs can be managed well at the country level in order to minimize the risks of false allegations and unnecessary public concern about the safety of immunization.

Progress in 2015

- **NRA Strengthening:**
 - NRA role in enforcement of Good Distribution and Good Storage Practices strengthened by proposed revision of indicators in NRA assessment tool
 - Regional workshop on collaborative procedures for WHO pre-qualified vaccines conducted in October 2015
 - SEAR network of regulators created, next meeting August 2016
- **Vaccine availability and quality:**
 - All countries with limited resources are currently using WHO pre-qualified vaccines for EPI programme
 - Local production has been supported for pandemic influenza vaccine, Sabin IPV, Hepatitis B and cholera vaccines
- **AEFI surveillance:**
 - AEFI field investigation manual is under revision

Country specific Progress

- **Bangladesh**
 - First country worldwide to profit from novel coalition approach
 - Road map developed for NRA strengthening
- **Myanmar**
 - Self-assessment of NRA was induced
 - Lab capacity strengthened
- **Nepal - Indonesia**
 - Collaboration on NRA capacity building initiated
- **Bhutan – Thailand**
 - Collaboration on NRA capacity building initiated

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 vaccines that address public health priorities, and to ensure that NRAs remain fully functional.
- Non-manufacturing countries do not always recognize the importance of developing the minimum regulatory function to ensure that imported vaccines are accessible, safe, and efficacious.
- Countries that do not rely on UNICEF for bulk 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.

SEARVAP Strategic Objective 1: All countries commit to immunization as a priority

GVAP recommends countries to carry out three strategies to ensure and strengthen national commitment to immunization as a priority.

Status of implementation in the South East Asia Region

All countries in the Region recognize that immunization is the most cost effective public health intervention and is frequently in the agendas of governing body meetings. Most of the countries have developed legislation or a legal framework (for example Nepal has an immunization Act approved by the Parliament and Sri Lanka a national immunization policy document). Provisions for a budget line for immunization are included in most cases but countries need technical assistance to estimate immunization costs and learn from experiences of other countries. Almost all countries have developed and have been implementing a comprehensive national immunization plan, including country-specific targets, cost of activities. Some have developed mechanisms to monitor immunization budgets, disbursements and immunization programme activities, and had been supporting local civil society organizations and professional associations to contribute to national discussions on immunization and health system development. Some countries noted a need to strengthen such systems and activities.

The decision making on immunization related issues is usually carried out by the National immunization technical advisory groups (NITAGs). These are independent committees that advise policy-makers on all immunization-related issues. By endorsing the Global vaccine Action Plan (GVAP) of the Decade of Vaccines at the World Health Assembly in 2012, countries have agreed to establish NITAGs that are conform to the international standards as defined by WHO not later than 2020. As of November 2015, all countries in the WHO South-East Asia region (SEAR) have established NITAGs. Consultative workshops for strengthening NITAGs have been conducted in the Region since 2009. Most of the countries have carried out several activities for developing and disseminating an evidence base on the public health value of vaccines and immunization and the economic benefits of immunization, while many countries need technical assistance to further expand the evidence base, including to collect, analyse and disseminate evidence.

Some countries in the Region have established interagency coordinating committee (ICC) or a health sector coordinating committee (HSCC) as part of their relationships with donors particularly with GAVI, the Vaccine Alliance, as part of their commitment to make immunization as a priority.

SEARVAP Strategic Objective 2 : Individuals and communities understand the value of vaccines and demand immunization as both their right and responsibility

This strategy expect to (1) increasing numbers of children being vaccinated; and (2) building capacities to counteract growing anti-vaccination lobbying groups by increasing understanding of the value of vaccines and of the danger of diseases.

Status of implementation in the South East Asia Region

Many countries face numerous challenges to ensure that every child is vaccinated with all the antigens in their NIP. Even in the countries that perform well, there are pockets of unreached or hard-to-reach populations for whom special efforts are needed to reach the children. Tools such as Reach Every District (RED) and Reach every Community (REC) have not been optimally utilized to address issues of hard-to-reach children. Implementing GRISP approach¹ will certainly assist to intensify routine immunization

With the polio nearing declaration as eradicated in the Region, the resources, both materials and human, of the polio programme can be used to strengthen routine immunization activities in select countries where such capacities have been built and where such resources exist.

1. Nepal has achieved DTP3/Penta3 national coverage of 91% in 2015. The country introduced the concept of achieving fully immunized villages through the “appreciative inquiry” method in 2012. Till now 17 districts, two sub-metros, 56 municipalities and 1300 village development committees (VDCs) have been declared as fully immunized. Immunization micro-planning for municipalities is in place and the month of Baisakh (mid-April to mid-May) is observed as “Immunization Month” in the country every year with the national immunization programme allocating a budget each year for districts to celebrate this month. An immunization Act was passed in Parliament in 2016 ensuring the right to vaccination and the provision of quality vaccines and logistics for children and also stipulating the provider’s and recipient’s responsibilities, a system of appeal in relation to immunization activities and norms related to compensation. The establishment of the National Immunization Fund and immunization committees (National Immunization Committee, National Immunization Advisory Committee and AEFI Committee) are also outlined in the Act.
2. In Indonesia, an EPI communication forum has been established including professional organizations such as the Indonesian Paediatric Society and religious bodies to conduct advocacy meetings with local governments and address issues related to “vaccine hesitancy”.

SEARVAP Strategic Objective 3: The benefits of immunization are equitably extended to all people

Status of implementation in the South East Asia Region

The SEAR has made tremendous efforts in improving routine vaccine coverage in the last decade, however equity gaps remain. While the region achieved 87% DTP3 in 2015, those children that are not being fully immunized are increasingly residing in marginalized or hard-to-reach communities. Economic growth in the region is also driving a shift in where immunizations inequities occur, from the rural remote to the urban poor. Addressing immunity gaps in the urban poor is being considered as a priority and several programmes are being implemented to engage with these marginalized communities directly to overcome “social distance”. New technologies, such as mobile phones and SMS messaging for both monitoring and sending reminder offers opportunities are being increasingly used.

Jakarta province, in Indonesia in 2015 initiated a SMS based real time reporting in slum areas of city targeting poorest communities to enhance coverage in urban slum. East Jawa province has conducted

special activities to reach the unreached by revision of microloans and daily vaccination in hospital clinics in order to reduce missed opportunities.

SEARVAP Strategic Objective 4: Immunization programmes are integrated into a well-functioning health system

Status of implementation in the South East Asia Region

The integration of immunization programmes to a well-functioning health system enables effective delivery of vaccines to improve coverage and equity. One pre-requisite for this is strengthening components of the health system to achieve this objective. Countries in SEAR are pursuing strengthening of health systems. In 2015, Bangladesh and Myanmar secured three year grants to strengthen their health systems from Gavi, The Vaccine Alliance. Indonesia is implementing the last tranche of their Gavi health system strengthen (HSS) support. Nepal, India, Timor Leste and DPR Korea too implemented their Gavi HSS grants to strengthen health systems for improved immunization outcomes.

SEARVEP Strategic Objective 5: Immunization programmes have sustainable access to predictable funding, quality supply and innovative technologies

Status of implementation in the South East Asia Region

According to the indicators of the Sustainable Immunization Financing reported through the JRF (2015), only Maldives and Myanmar were self-funding their routine EPI activities including procurement of vaccines. The percentage of government expenditure on routine immunization varied from 29% in Bangladesh to 76% in Indonesia in the group of countries where routine immunization activities depended on external and domestic financial resources. In DPR Korea, Pentavalent and IPV vaccines were supported by Gavi, The Vaccine Alliance while other vaccines in the EPI were supported by UNICEF. In 2015, Timor Leste and Myanmar prepared their five year comprehensive multi-year immunization plans (cMYP) with the total budget requirement for implementation of planned activities during the stipulated period. In this exercise, both countries determined predictability of funds through the domestic and external resources and identified the funding gap that requires planning for resource tracking and mobilization. Partners such as sustainable immunization financing programme of Sabin, Gavi The Vaccine Alliance and world bank worked in countries in the SEAR. Gavi organized the transition assessment and planning exercise with a view to mitigating the impact of the transition of Bhutan and Sri Lanka from the Gavi support.

SEARVEP Strategic Objective 6 : Country, regional and global research and development innovations maximize the benefits of immunization

Status of implementation of in the South East Asia Region

Technical capacity to conduct high-quality operational research in some countries is still limited and will require intercountry cooperation and external support. In the Vaccine producing countries there is a need to invest in research, development and manufacturing techniques, to identify best ways to access to appropriate technology, expertise and to manage intellectual property rights and develop thermostable and suitable product, new bioprocessing and manufacturing technologies.

Vaccine development and production capacity in the Region is growing, improving quality and playing an increasing positive role both at regional and global level.

The main need in the Region is to strengthen the countries' capacity to undertake research relevant to their situation across a range of operational research on immunization, vaccine development, manufacturing, supply and procurement and regulation including clinical trials. This will require sustainable funding and collaboration among health ministries, academic institutions and private and public research organizations. The countries are taking the advantage of regional research networks that support capacity building and improvement of the quality of research.

ⁱ World Health Organization, Regional Committee for the South-East Asia Region. Resolution SEA/RC66/R5: Measles Elimination and Rubella/Congenital Rubella Syndrome Control. New Delhi, India: World Health Organization; 2013. Available at <http://repository.searo.who.int/bitstream/123456789/16894/1/SEA-RC-66-R5-Measles.pdf> Accessed 2nd March 2015

ⁱⁱ World Health Organization, Regional Office for south East Asia Region. Regional Committee for the South East Asia Region. Report of the 62nd Session, Kathmandu, Nepal, September 2009. SEA/RC62/27. Available at <http://www.who.int/iris/handle/10665/128481> Accessed 2nd March 2015

ⁱⁱⁱ World Health Organization. Measles elimination. Draft Report of the regional consultation on measles. New Delhi, India: World Health Organization, Regional Office for South-East Asia, 2009; 5–17, http://www.who.int/immunization/sage/Draft_report_measles_consultation_01_Sept.pdf Accessed 2nd March 2015

2016 TAG Members' Report on the Progress of the Regional Framework for Implementation of the Global Vaccine Action Plan in the Western Pacific

Contents

1. Background	1
2. Progress at the midpoint of the Decade of Vaccines	2
3. Disease control Goals: Challenges and Opportunities	4
4. Providing equitable access to maximize reach	8
5. Sustainability – ensuring that gains made are sustained	12
6. Adapting to the changing landscape of immunization services	15
7. Creating demand for immunization	17
8. Conclusion and recommendations	20

1. Background

In 2012 the World Health Assembly endorsed the Global Vaccine Action Plan (GVAP) 2011-2020, detailing the strategies and activities to achieve the Decade of Vaccines vision. The Regional Framework (RF) for Implementation of the GVAP in the Western Pacific was endorsed by the 65th Regional Committee of the Western Pacific and the Technical Advisory Group (TAG) on Immunization and Vaccine-preventable Diseases.

The World Health Assembly urged Member States to report every year to the Regional Committees on lessons learnt, progress made, remaining challenges and updated action to reach immunization challenges. WHO Regional Offices agreed to establish a yearly review process, through their regional immunization Technical Advisory Groups, to be reported to the Regional Committees. These reports will also be shared with WHO's Strategic Advisory Group of Experts on Immunization (SAGE).

The Regional Framework confirms the regional immunization goals of sustaining polio-free status, eliminating measles and maternal and neonatal tetanus (MNT), controlling hepatitis B and introducing new and underutilized vaccines (further referred to as new

vaccines) in low- and middle-income countries; additionally the RF introduced the goals of reaching 95% national coverage and reaching >90% in every district for all vaccines used in the national immunization programmes and controlling Japanese Encephalitis (JE) and eliminating rubella. Six strategic objectives of GVAP were reviewed, outlining priority actions required to accelerate progress towards achieving immunization goals.

Efforts to achieve disease control and introduction of new vaccines targets have produced positive results. However, challenges in terms of sustainability of the program and addressing the equity of access of program benefits to unreached populations have emerged. To address these, WPRO is embracing the principles and strategies as outlined in the Global Routine Immunization Strategies and Practice (GRISP) and Middle-Income Country (MIC) Strategy and encourages use of these strategies by Member States to strengthen immunization programmes.

Routine immunization is the cornerstone for achieving the GVAP and Regional Framework targets. GRISP was developed as an accompanying document to the GVAP that sets the foundation for sustained decreases in morbidity and mortality from vaccine-preventable diseases across the life-cycle of all individuals. GRISP is based on nine formative investments to achieving better immunization outcomes and is a comprehensive framework of strategies and practices for improving routine immunization. Its implementation will contribute to ensuring that the Regional goals are met.

Half of Western Pacific Member States, totalling approximately 85% of the population, are MICs and have specific program financing challenges. The increased cost of immunization programs associated with the introduction of new vaccines is a major concern for MICs that do not benefit either from lower prices negotiated by organisations such as Gavi, the Vaccine Alliance, or from international donor support. The challenge of vaccine affordability has caused many MICs to lag behind the Gavi-supported countries in the introduction of new vaccines. An MIC Strategy was developed to mitigate the impact of increased costs of immunization programmes in those countries; it was approved by SAGE in April 2015. The strategy is based on five principles: equity, health impact, feasibility, value for money and complementarity. The strategy has the possibility to become a game changer for MICs in the Western Pacific.

2. Progress at the midpoint of the Decade of Vaccines

At the midway point of the Decade of Vaccines, the Western Pacific Region is making progress towards achieving many of the RF goals. Since 2009, the Region as a whole has sustained coverage above 95% with three doses of diphtheria-tetanus-pertussis vaccine (DTP3). As of 2015, 20 countries have achieved DTP coverage of 95% or above. In 2015,

15 countries and areas in the region reached at least 90% DTP3 coverage in more than 90% of their districts.

Despite this progress however, vaccination coverage is uneven across countries and unequal coverage persists between districts. Official coverage estimate of DTP3 is less than 80% in the Federal States of Micronesia, Wallis and Futuna, Philippines and Papua New Guinea and between 80%-90% in Lao People's Democratic Republic, Kiribati, Marshall Islands, Solomon Islands and Vanuatu. At the sub-national level, 11 countries have at least one fourth of the districts with coverage less than 90%. Uneven coverage can negatively impact efforts to achieve elimination and control of vaccine preventable diseases by creating pools of susceptible persons that can sustain transmission of VPDs. In 2015, the results of uneven coverage were demonstrated by an outbreak of circulating vaccine-derived poliovirus type 1 (cVDPV1) in the Lao People's Democratic Republic where the virus affected only an ethnic minority population.

Uneven coverage is a result of inequitable access to immunization which remains a major problem in low- and middle-income countries in the Region. Increasing access opportunities for vaccination for specific population groups, such as migrant populations, minor ethnic groups and people in difficult-to-reach areas, is a priority.

Effective strategies to ensure equitable access are further challenged by the fact that the monitoring of immunization coverage is often inaccurate due to poor data quality or the inadequacy of reporting systems for tracking increasingly mobile populations and vaccination in the private sector.

At this point, four clear challenges to reaching and sustaining the Regional Framework goals are apparent; i) providing equitable access to vaccines to maximize reach; ii) ensuring sustainability to maintain gains; iii) addressing the changing landscape of immunization services; and iv) creating demand for vaccination.

Box text: Game changers: Strengthening routine reporting systems

Ongoing advancements in information technology infrastructure, computer literacy and electronic birth registration within and outside the health sector are creating opportunities for the EPI to strengthen the routine reporting system and set up electronic immunization registries (eIR). In 2015 Samoa and Mongolia initiated the process to implement an eIR and Vietnam conducted a pilot project in 2 provinces. Expanding these initiatives throughout the Region could be a game changer by enabling more reliable coverage monitoring at the population as well as at the individual level. A system for routine reporting of coverage and vaccine preventable disease (VPD) surveillance could also benefit from integration of information into the national health information systems, provided that strong coordination between the expanded programme on immunization (EPI) and health information systems (HIS) is established.

3. Disease control Goals: Challenges and Opportunities

Sustaining polio-free status

The Western Pacific Region has maintained its polio-free status since certification in 2000. While the overall regional performance is satisfactory, it varies from country to country. As a result of chronically low coverage with routine polio vaccination a vaccine-derived poliovirus type 1 emerged in Lao PDR and circulated in the population for a prolonged time. This led to an outbreak of circulating vaccine derived poliovirus type 1 (cCDPV1) in 2015. As the risk of poliovirus importation from endemic countries and cVDPV outbreaks still exists, further efforts by all Member States are required to maintain polio-free status of the Region until global polio eradication.

In April 2016, as a part of the Polio Endgame Strategic Plan, all 16 Member States in WPR using oral polio vaccine (OPV) switched from trivalent to bivalent vaccine. In 2015, 15 of 17 countries and areas that were using an all-OPV schedule have introduced at least one dose of inactivated polio vaccine (IPV) in their national immunization schedules. As of 1 July 2016 three countries, China, Papua New Guinea and the Philippines, are continuing with phased roll out of IPV. Due to global supply shortages Viet Nam and Mongolia will not be able to introduce IPV at least until the 4th quarter of 2017. In addition, eight Pacific Island Countries (Cook Islands, Fiji, Kiribati, Nauru, Samoa, Solomon Islands, Tonga and Vanuatu) that already introduced IPV will experience stock-outs at least until the 4th quarter of 2017. After the switch from trivalent to bivalent oral polio vaccine in April 2016, the IPV global supply limitation will lead to an increase in the number of people susceptible to type 2 poliovirus. Adoption and implementation of strategies in the Region will be required to properly address this immunity gap.

Maternal and neonatal tetanus elimination

Last year, Cambodia was validated as having achieved MNT elimination, meaning that all but two countries have achieved the goal set out in the Regional Framework of regional elimination by 2015. Challenges remain in Papua New Guinea and one of 16 regions of the Philippines (the Autonomous Region in Muslim Mindanao). Supplemental tetanus vaccination campaigns are ongoing in the remaining regions of the Philippines. A pre-validation assessment is planned in Papua New Guinea later in 2016.

Gaps in health systems, such as lack of access to tetanus toxoid vaccine for women, continue to be a stumbling block to meeting the goal. Achieving the goal will require strengthening systems to ensure high-quality antenatal care and skilled birth attendants at health facilities equipped for deliveries. Integrated service delivery of maternal and child health and immunization services in field settings is necessary to address these issues.

Measles elimination

After achieving the historically lowest level of measles transmission and incidence in 2012, the Western Pacific was affected by a region-wide measles resurgence during 2013-15. Large-scale outbreaks occurred in countries with previous periods of low or unnoticed measles transmission following importation from endemic countries. There were also multiple importations from endemic countries to those that had achieved or were approaching measles elimination.

The Western Pacific Regional Plan of Action for Measles Elimination (WPRO, WHO, 2003) is currently being updated to address unsolved issues and emerging challenges and will be presented for consideration at the Regional Committee Meeting in 2017. Three additional countries (Brunei Darussalam, Cambodia and Japan) were verified in 2015 as having eliminated measles, bringing the total in the Region to seven.

Rubella elimination

Rubella elimination is on track in the Region and has been incorporated in the measles elimination activities in some countries and areas. As of mid-2016, all countries and areas have introduced rubella-containing vaccine into their routine immunization schedules and all but one are submitting case based surveillance data on rubella to WPRO, enabling better monitoring of the progress toward rubella elimination. Regional strategies for rubella elimination will be proposed in the revised Regional Strategies and Plan of Action for Measles and Rubella Elimination in the Western Pacific, which will be submitted for discussion at the 25th TAG meeting. The Regional Strategies and Plan of Action propose the timeline to reach rubella elimination by 2020 and outline operational targets to achieve and sustain elimination of both measles and rubella.

Since 2015, Australia, New Zealand, the Republic of Korea and Singapore have been approaching elimination of rubella. Japan developed a national plan and strategy for rubella elimination, Mongolia and Cambodia have begun to develop national plans, and Viet Nam will start developing a national plan and strategy for rubella elimination by 2017.

Accelerated control of Hepatitis B

The 2017 Regional hepatitis B control goal is likely to have been achieved, based on analyses that estimate the regional prevalence of hepatitis B surface antigen (HBsAg), a marker of chronic hepatitis B infection, among 5-year-old children is 0.93%. By the end of 2015, 13 countries and areas had been verified as having met the 2017 goal of chronic hepatitis B infection of less than 1% in 5-years old children. An additional 11 countries and areas in the region have conducted serosurveys that indicate a prevalence of less than 1%, however these have not been verified to date.

While this is an important achievement, more needs to be done to ensure equal access to hepatitis B vaccine so that every country and area in the Region can reduce the HBsAg prevalence to less than 1% among 5-year-old children. WPRO aims to achieve

95% coverage with a timely birth dose (within 24 hours) and three-dose vaccination within the first year in all countries and areas in the Region. Regional coverage of timely birth dose was 81% and three-dose coverage was 94% in 2015; 14 countries reported at least 95% coverage of three dose of hepatitis B vaccine.

The Regional Action Plan for Viral Hepatitis in the Western Pacific 2016-2020 was published in May 2016 and provides a systematic approach to reduce the impact of viral hepatitis, to include hepatitis B and hepatitis C care and treatment targets and to have all Members States develop a national policy of vaccinating health-care workers against hepatitis B by 2020.

Introduction of new vaccines

The Regional Framework calls for the introduction of one or more new or underutilized¹ vaccines in all low- and middle-income countries by 2020. 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 low- and middle-income countries and areas, 3 had introduced all 4 new vaccines by 2010; 8 (50%) of the remaining 16 countries and areas have introduced at least one new vaccine since 2010.

As of June 2016, 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] and have not introduced Hib vaccine and data on new vaccine introductions are not available for the Pitcairn Islands); Hib vaccine has been introduced in 4 countries and areas since 2010). HPV vaccine has been introduced in 17 countries and areas (7 since 2010) and HPV vaccine demonstration projects have been conducted in several countries. PCV has been introduced in 24 countries and areas (introduced in 10 since 2010). Rotavirus vaccine has been introduced in 9 countries and areas (3 since 2010).

Accelerated control of Japanese Encephalitis

To date, 9 of the 12 countries with endemic JE transmission have introduced JE vaccine in some (Cambodia, Malaysia) or all (Australia, 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 three countries, Brunei Darussalam has used outbreak response immunization only, the Philippines plans introduction in 2018, and Papua New Guinea is collecting burden of disease data in preparation to making a decision about JE vaccine introduction. Two countries have introduced JE vaccine since 2010.

¹ For the purposes of this document 'new and underutilized vaccines' include *Haemophilus influenzae* Type b [Hib] vaccine, human papilloma virus [HPV] vaccine, pneumococcal conjugate vaccine [PCV], and rotavirus vaccine.

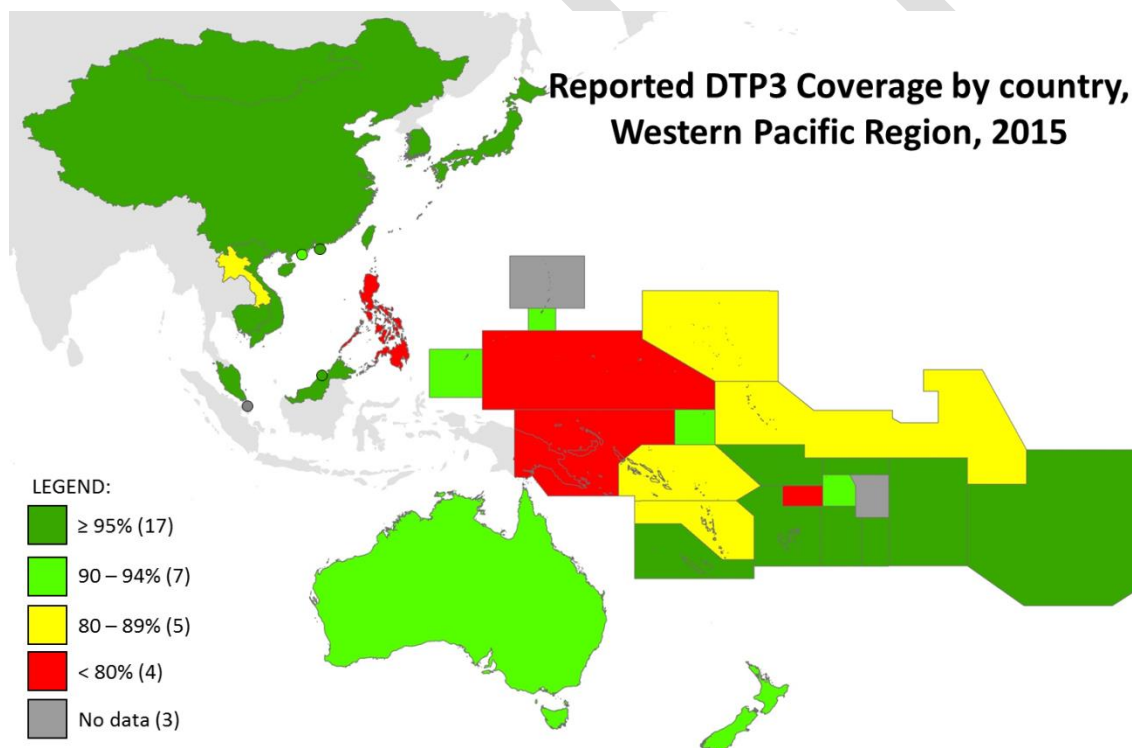
Box text: Game Changer: *As of mid-2016, a new dengue vaccine, Dengvaxia, was licensed by five countries worldwide. In 2016, the Philippines initiated the first dengue vaccine campaign, targeting 9-year old children in three provinces highly endemic for dengue. A dengue vaccine position paper will be published by WHO in July 2016. The introduction of dengue vaccine has the possibility to be a major game changer for the region in dengue control and prevention, particularly reducing severe dengue. However, a number of implementation issues will need to be addressed before the vaccine can be introduced in the routine immunization programme of the Philippines and other countries and areas in the Region.*

DRAFT

4. Providing equitable access to maximize reach

One of GVAP's guiding principles is to improve equity in access and use of routine immunization services to maximize the population reached. Inequitable access to vaccines continues to be a major deterrent to achieving coverage targets in all countries.

As a whole, the Region has maintained high coverage of DTP and measles containing vaccines over recent years; however there are clear disparities across countries. Coverage of DTP3 is less than 80% in Federal States of Micronesia, Wallis and Futuna, Philippines and Papua New Guinea and between 80%-90% in Lao People's Democratic Republic, Kiribati, Marshall Islands, Solomon Islands and Vanuatu. Despite reported high coverage of DTP3 in Tonga and Cambodia, WHO-UNICEF estimates suggest that actual coverage could be <90%.

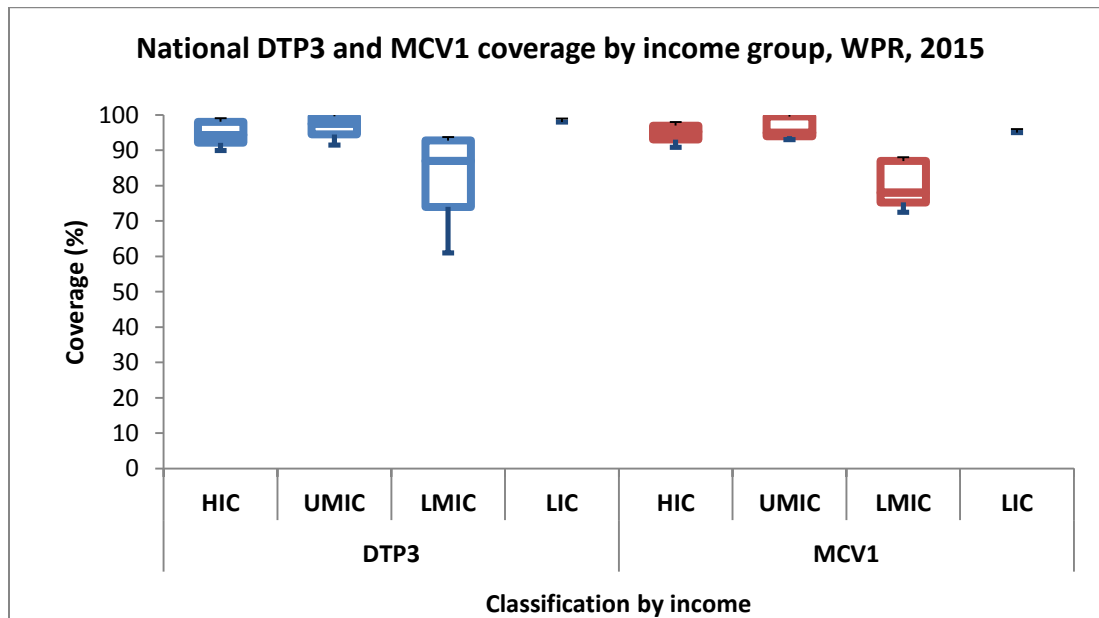


Disparities in routine immunization coverage and services can be observed by country income level, types of vaccines, age, geographic area (e.g. at the subnational level in particular countries) and marginalized groups (e.g. ethnic minorities).

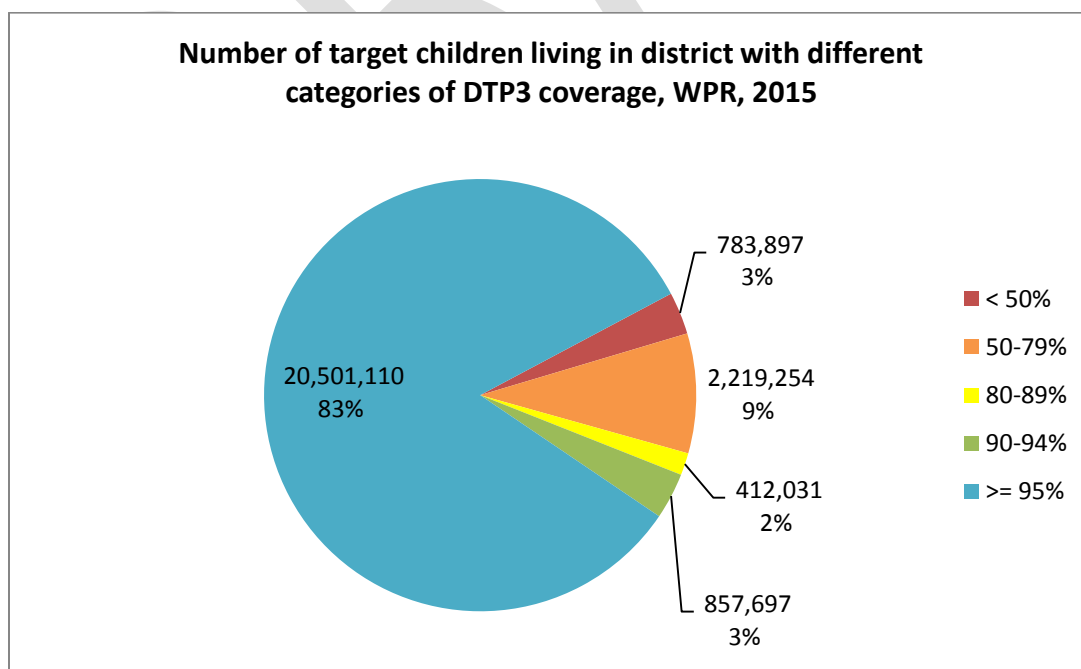
While immunization coverage has minor variation among high-income and upper-middle income countries² (totalling 2 million and 18 million target population

² There are 13 high-income countries and 10 upper-middle income.

respectively), large variation is observed in the 10 lower-middle income countries that account for 5 million target population. Only one country, Cambodia, was included in low income countries as per 2015 classification.



Within each country, immunization coverage is geographically unevenly distributed, with 11 countries failing achieving 90% coverage for DTP3 in at least 90% of the districts. That results in 3 million children (12% of the regional target population) living in districts where DPT3 coverage is lower than 80%.



Even in countries with high national and subnational coverage, the occurrence of clusters and outbreaks of VPDs suggests that pockets of unvaccinated people can persist in areas that are geographically difficult to reach, where vaccine service delivery is inadequate, where there is a highly mobile population and/or where demand is poor. This was demonstrated by diphtheria outbreak in the Philippines in 2014, where cases have been reported also from high coverage districts.

In addition to failure in the immunization programmes to reach all population, accumulation of susceptibles is also occurring due to lower vaccine effectiveness that is linked, among other factors, to poor vaccine management and weak cold chain. Uneven cold chain capacity and quality of immunization within countries could further contribute to inequity and the resurgence of disease. The resurgence of measles in Mongolia in 2015 indicated accumulated susceptibility among young adults despite this age group being targeted by multiple supplementary immunization activities. Outbreak investigation suggested that some part of the population was consistently missed, which may be due to high population mobility, and that vaccine effectiveness outside of the capital city was much lower due to poor cold chain infrastructure before 2010.

Higher incidence of VPDs in particular ethnic groups suggest they may have increased susceptibility due to vaccination failures such as reduced access to or use of immunization services; one example is the occurrence of measles and cVDPV cases in Lao PDR, which has mainly affected the Hmong population.

Improving access to immunization services and closing the immunity gap among underserved populations, such as ethnic minority groups and those living in hard-to-reach areas, is one of the main areas in which WHO is focusing its efforts to support countries and areas. Operational guidance to reaching global and regional targets has been developed in consultation with Member States, for example in both the GRISP and MIC Strategy. The implementation of these strategies will be pivotal in closing gaps.

Positive examples of this work can be seen throughout the region. In the Lao People's Democratic Republic intensive work is being done to address the needs of the Hmong community, in which the cVDPV1 outbreak occurred. Also, Cambodia has developed an implementation guideline for high-risk communities to ensure that those populations are identified and protected through effective immunization service delivery. More efforts like these will be required to ensure that programmes reach the unreached.

Box text: Case study:

The cVDPV1 outbreak that occurred in Lao PDR in 2015 revealed inequity in the field of immunization. The Hmong community is an important ethnic group that has been missed by routine vaccination for many years leading to susceptibility to VPDs in a substantial portion of the population. This has resulted in repeated outbreaks of VPDs in

this group in recent years and prolonged circulation of cVDPV1 leading to an outbreak in 2015. In response to chronically low coverage with polio vaccine among the Hmong population, the Ministry of Health, with support from WHO and UNICEF, developed and implemented social mobilization and communication activities tailored to this community. This targeted approach led to a significant increase in vaccination demand in the community and resulted in improved protection by increasing vaccination coverage.

DRAFT

5. Sustainability – ensuring that gains made are sustained

In order to maintain the significant gains that have been achieved throughout the Region, programmes need to ensure their sustainability. In countries that have already achieved measles elimination, such as Cambodia, Japan, Mongolia and the Republic of Korea, ministries of health are making efforts to ensure that this achievement is maintained. Immunization programmes are being further strengthened in areas such as surveillance and outbreak preparedness and response. These efforts are a positive sign that progress can be sustained throughout the Region. However challenges remain.

Sustaining the gains requires efforts in different aspects of programme management, ranging from overarching issues such as the current and future financial needs of immunization programmes, to more specific aspects such as keeping up to date recent scientific recommendations and using new improved technologies for delivery of vaccines and diagnostic methods.

Boxed text: Case Study: Laboratory sustainability

Substantial efforts are being made to build laboratory capacity to ensure transition of assets and knowledge to countries. Efforts are being made to provide standardized methods for testing, procurement of necessary equipment, implementing quality assurance system and organizing training for staff. A strong commitment from national governments to providing both programmatic and financial support will be needed to sustain the high quality of laboratory testing and data generated.

Financial sustainability

Financial sustainability is a significant concern both in low- and middle-income countries. The cost of immunization programmes is increasing, accounting for a higher number of antigens covered by vaccines in the routine schedule, demanding efforts to reach all unimmunized children and expand vaccination beyond the first year of age, and the need of highly sensitive and specific surveillance. In addition to this, there are a growing number of competing priorities within and outside of the health sector.

The majority of countries and areas in the Western Pacific Region are not eligible for Gavi support. Of the 7 countries that were previously supported by Gavi two have already graduated (Mongolia and Kiribati). The remaining 5 will continue to receive support through transition plans during 2016-2020.

For Gavi transitioning countries, making efforts to financially sustain the introduction of new vaccines is of particular concern, which underscores the importance of countries committing to secure funds for national immunization programmes. Most of the countries and areas in the region have identified funding needs and potential funding sources through country multiyear planning, but continued efforts are required from governments for their implementation.

Vaccine security

During 2015, vaccine stock outs (at both national and subnational levels) were reported in 11 countries (*Source JRF 2015*). Some were due to internal planning and distribution issues, while others were due to vaccine shortages in the international market (e.g. shortage of IPV and Bacillus Calmette-Guérin vaccine). A shortage of vaccines that can be used for outbreak response is also a concern. While strengthening effective vaccine management can address internal stock management issues, global partners also need to focus on addressing global supply shortages of vaccines.

Vaccine shortages may be in part due to the lack of effective vaccine management (EVM) in some countries and areas. Monitoring supply and demand at both 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 assessment. EVM assessments identify areas where improvements can be made, including in vaccine storage, stock management (including vaccine forecasting and distribution), distribution and human resource capacities. These assessments are an opportunity for countries and areas to identify gaps and close them through improvement plans and other actions that will promote equitable immunization services. In 2015, four countries (Cambodia, Kiribati, Mongolia, and Viet Nam) conducted the EVM assessments and thus far in 2016, Papua New Guinea has completed an EVM assessment.

MICs are particularly affected by vaccine stockouts; in 2015 five reports of stockouts tookplace in MICs. The MIC strategy is based on five guiding principles, including equity, which focuses on four areas to enhance vaccine security: 1) strengthening decision making; 2) increasing political commitment and financial sustainability; 3) enhancing demand for equitable delivery of vaccines; and 4) improving access to affordable and timely supplies. Close follow up of the progress that MICs make in these focus areas, particularly on financial sustainability, is necessary.

Effective national regulatory systems are an essential component of health systems and contribute to better public health outcomes by ensuring reliable supply of quality assured medicines, vaccines and other medical products. National regulatory authorities (NRAs) are important in increasing vaccine supplies in the region through manufacturing countries as well as enabling the timely licencing of new vaccines and products. The Regional alliance for National Regulatory Authority (NRA) for vaccines in the Western Pacific continues to provide assistance to countries in ensuring the use of vaccines of assured quality through NRA assessments, which is an essential component of functioning NRA. During 2014-2016, five countries (Cambodia, Lao PDR, Mongolia, Philippine and Viet Nam) have developed institutional development plans to strengthen their NRAs.

Vaccine price is a major determinant in countries' ability to financially sustain immunization programmes. The V3P (Vaccine product, price and procurement), a web-based platform developed by WHO, offers countries a place to share relevant information. This platform enables countries to better understand the vaccine supply situation and mitigate the effects of current shortages and prevent future shortages. WPRO has encouraged countries to share vaccine price data and has begun analysis of vaccine pricing data available on the platform in an effort to assist countries with vaccine financing and procurement planning. In 2015 however, only 7 countries have shared data on the V3P database which limits its value.

Governance

The Regional Framework calls for all countries to commit to immunization as a priority. Ensuring gains made are sustained requires the ongoing commitment of governments to immunization. In WPR, 23 countries have developed up-to-date, costed country multiyear plans for immunization, a positive sign of commitment.

Functioning national immunization technical advisory groups (NITAGs) play a significant role in developing evidence-based recommendations to support immunization policies and plans. NITAGs in the Western Pacific Region operate at varying levels of functionality, and some countries have yet to establish NITAGs or their equivalents. In 2015, support was provided to strengthen the operational procedures of NITAGs and foster knowledge sharing through the NITAG Resource Centre, an interactive online platform for the NITAG community. More can be done to strengthen NITAGs, such as building capacity in evidence-based decision making skills and increasing cooperation between NITAGs, both within and outside the Region, on issues of common relevance.

Leadership and accountability at the national level is also a challenge throughout the Region. Strong leadership in immunization programs is vital to their success. Investments in the program alone may be ineffective if investments in human resources are not also made. Efforts should be made to identify and foster leaders and to improve accountability systems Region-wide.

6. Adapting to the changing landscape of immunization services

Throughout the Region, the landscape of immunization service delivery is changing. Three key changes being experienced are; i) an increase of private sector immunization providers; ii) increasingly mobile and urban populations and iii) the introduction of the life-course approach to immunization.

Engaging with private sector immunization providers

The engagement of private sector providers (defined as provision of vaccination and other health services by any entity other than the government) in immunization is changing rapidly. A recent survey conducted by the WHO Western Pacific Regional Office revealed that the provision of immunization services by private sector providers is increasing and will have a role in achieving the regional immunization goals.

Engagement with the private sector can increase opportunities for immunization programmes such as increased geographical reach, greater resources and additional opportunities for vaccination. However, there are considerable challenges that come with this engagement including ensuring standardized immunization schedules and regulations are adhered to and capturing program data. Private services may also lead to further inequity through the provision of fee-based services and perceptions that these may be of higher quality than public services. On the other hand they could be a resource to increase access to vaccines if are offered through more flexible schedules fitting the needs of working caretakers and reducing risk for delayed or non-vaccination. For example, in Vietnam for-fee vaccines are available daily while the EPI immunizations occur only monthly.

The survey revealed that the level and types of engagement with the private sector vary widely within the Region. Countries will need to find ways to adapt to this changing landscape to increase their chances of benefiting fully and overcome any risks resulting from this change.

In some countries (e.g. the Philippines) it is becoming increasingly important to understand the actual contribution of the private sector to the national immunization coverage. Coverage surveys, including demographic health surveys and MICS could be an opportunity to measure this contribution where the private sector is not reporting data to the EPI.

Immunizing mobile and urban populations

The Western Pacific Region is home to 30% of the world's population and is expected to continue to grow rapidly. Throughout the Region, mobile and urban populations are increasing, making populations more vulnerable to the spread of vaccine preventable diseases.

Mobile population include people moving within the country for seasonal jobs (i.e. workers in rice fields), nomad population (i.e. herd keepers in Mongolia), displaced by seasonal floodings, etc. Mobile populations usually do not register at the place where they are temporarily residing, creating issues in ensuring timely and complete immunization and proper recording and reporting of information.

Rapidly increasing urbanization poses several challenges since the control of diseases in high density population, often hard to reach, prove to be extremely difficult. Overall high vaccine coverage rates for urban areas may mask vulnerable pockets in metropolitan areas, such as slums and periurban areas. Monitoring of coverage in urban settings is becoming increasingly challenging. In countries where rural-urban migration is happening very rapidly (e.g. Philippines and Cambodia) making projections based on old census is often misleading. In countries that use a registered population (e.g. Vietnam and Mongolia), registration of population in large cities, particularly in densely populated informal settlements, is inaccurate. Although demanding in terms of implementation and funding, coverage surveys representative at subnational level, could provide valuable information to identify unvaccinated populations and reasons for non-vaccination to guide programme decision making.

Providing services to very dense and mobile populations in urban setting requires using different approaches than those frequently designed for and used in rural programs. Disparities in immunization among poor communities with competing socio-economic priorities pose a significant challenge. Strategies should be designed to identify vulnerable communities and implement community mobilization efforts.

Adopting a life-course approach to immunization

Routine immunization is no longer limited to younger age groups. The need to boost immunity to sustain and extend gains throughout life is increasingly being recognized. The introduction of new vaccines beneficial to school children, adolescents and adults at special risk – such as health workers, and the elderly (e.g. HPV and influenza vaccines) has led to opportunities to reach a broader age group of people and prevent more illnesses throughout life.

In 2013, the TAG encouraged countries to adopt a life-course approach to immunization and to use additional strategies to reach targeted populations, such as school-entry screening and vaccination. Support from cities and local government authorities is vital in this regard, and coordination is required with other sectors outside of health such as education and labour. Social and operational research is needed to inform the design and test the effectiveness of delivery strategies to different age groups that are a new focus of immunization programmes.

There are positive examples of this occurring already that can be adapted to other countries. Several countries such as Malaysia and Fiji have introduced school-based

programs to provide HPV vaccination. China has implemented an effective national policy of school entry screening and vaccination.

Box text: Case study: Innovative approaches to service delivery Outside the cold chain (OCC) for hepatitis B vaccine: Cambodia, Lao PDR, Papua New Guinea and the Philippines conducted assessments of birth dose practices in 2014 to identify the main barriers to increasing birth dose vaccination coverage. Studies performed in laboratory and field settings in Viet Nam, China and elsewhere have shown that hepatitis B vaccine remains effective. OCC was also conducted in Lao PDR to determine the feasibility and impact of implementing an OCC policy for hepatitis B birth dose storage. In Lao PDR, 38% of births occur at health facilities and only 37% of deliveries (home or health facility) are attended by a skilled birth attendant. For this study, hepatitis B birth dose was stored OCC for up to 28 days in two intervention districts and stored in the cold chain in two comparison districts. The study found that the median change in birth dose coverage was 27% in the intervention arm compared to a median change of 0% in the comparison arm. Intervention districts had significantly higher birth dose coverage rates compared to comparison districts, with no reported adverse events following immunization in the intervention districts. Healthcare worker acceptance of the OCC strategy was high, indicating that expansion of the use of OCC to the rest of Lao PDR could result in a substantial decrease in future morbidity and mortality from chronic hepatitis B virus. Following approval by the Lao PDR National Immunization Programme, a phased scale up of the pilot study is underway and a plan to implement the use of OCC nationally will be considered pending findings from the scale up project.

7. Creating demand for immunization

It is important that communities not only support immunization services, but that they actively desire and request them. This contributes to ongoing political advocacy and allocation of resources for immunization programmes.

There are examples of increased vaccine demand throughout the Region. For instance, active demand for measles-containing vaccines has been increasing among the general public in Cambodia and Mongolia, countries that have been verified as having achieved measles elimination.

However, despite compelling evidence of the benefits of vaccines in preventing diseases, vaccine hesitancy has become a growing focus of attention and concern in the Region, given its potential to lead to vaccine delays and refusals and place individuals and populations at risk of outbreaks of VPDs. In JRF 2015, 20 countries indicated they

had concerns about vaccine hesitancy (some concerns were recorded as opinions and 7 were based on evidence collected in the countries).

Vaccine hesitancy is often seen in specific sub-groups within populations and is rarely population-wide. It is important to identify groups that are or might become susceptible to vaccine hesitancy and reasons driving hesitancy. Not all vaccine hesitancy is specific to a particular vaccine or vaccination, and some influences are well beyond the scope of an immunization programme, however they must be understood in order to know how to best minimize the hesitancy. During the planning stage for vaccine safety communication, it is important to pay special attention to the issues around vaccine hesitancy. It is particularly important to be prepared with appropriate communication strategies to counteract negative media publicity on AEFI and allegations by anti-vaccine lobbyists that could exacerbate vaccine hesitancy among the population.

The WHO Western Pacific Regional office is planning to develop a guideline on addressing vaccine hesitancy. In addition, a vaccine safety communication guideline was developed in 2015 and distributed to national immunization programmes to support best practices in immunization. Innovative solutions for increasing active demand for vaccines need to be developed and implemented to ensure the ongoing sustainability of immunization programs.

Public interest in vaccine safety has increased through awareness and increased access to the information such as through internet. Surveillance on adverse events following immunization (AEFI) plays a significant role in addressing safety concerns. However, gaps in vaccine safety surveillance have been identified in low- and lower-middle income countries including under-reporting, delays in timely investigations and follow up actions have been identified in assessments of vaccine pharmacovigilance system of NRA and the AEFI surveillance system.

WPRO has distributed AEFI surveillance guidelines and regional vaccine safety communication guidelines for immunization programme managers and national regulatory authorities. These technical guidelines offer systematic, scientific, and practical approaches, tips and tools to enable them to engage and strengthen the capacity of different stakeholders in planning, implementing, managing, monitoring and evaluating, and documenting communication interventions around vaccine safety issues and immunization. In-country trainings on vaccine/immunization safety surveillance were provided to national immunization programme managers, surveillance workers and NRA staff in China, Malaysia, Philippines, and Viet Nam. It is expected that through these capacity building interventions, health staff will be able to handle vaccine safety issues more efficiently, leading to sustained public trust on vaccine and immunization.

Box text: Case study: Creating active demand: A project that aimed to both educate pregnant women before their deliveries and improve linkages between communities and health workers was conducted from 2014-2015 in 16 health facilities in Kiribati.

Through this effort, village health volunteers were trained on basic knowledge of hepatitis B disease and importance of birth dose vaccination. They then educated pregnant women during house visits and community meetings and reported pregnancies and home deliveries to health workers. The study found timely hepatitis B vaccine birth dose (within 24 hours of birth) coverage significantly increased from 81% to 93%. The coverage of timely birth dose among infants born at home significantly increased, from 60% to 79%. The project strengthened linkages between communities and health facilities and improved knowledge and practices among village health volunteers and pregnant women and the increases in coverage suggest efforts to increase education and strengthen linkages in communities will help protect newborns from developing chronic hepatitis B.

Box text: Case study: Vaccine safety and hesitancy: *Several widely publicized AEFIs in Viet Nam in 2013 resulted in suspension of pentavalent vaccine for 6 months, despite the clear vaccine related causality was not established. . Subsequent reluctance by providers and parents to hepatitis B birth dose resulted in a nationwide drop in birth dose coverage from 75.6% in 2012 to 56.0% in 2013. The country has responded by conducting a proactive media campaign and providing national healthcare worker training on immunizations to regain public and healthcare workers' confidence in the birth dose vaccine in Viet Nam. Birth doses are being administered following delivery at polyclinics and commune health centres in northern mountainous regions.*

8. Conclusion and recommendations

The Western Pacific Region has made considerable strides towards achieving many of the goals in the Regional Framework and GVAP by 2020. The Region has maintained its polio-free status, MNT elimination has been achieved in nearly all countries, rubella elimination is on track and there have been tremendous strides in the accelerated control of hepatitis B. Innovative methods are being developed to reach the unreached and better communicate with communities.

However significant challenges persist in ensuring that remaining gaps are addressed and that achievements made are sustained. The resurgence of transmission of measles and other vaccine-preventable diseases can be prevented by closing existing population immunization gaps. Sustaining achievements such as high vaccination coverages and prevention and control of multiple vaccine preventable diseases during past decades will be a challenge in coming years.

Regional immunization goal	Indicator and target	WPRO situation in 2015
Sustain polio free status	Sustain regional polio free status until global certification	36 / 36 countries
	Eliminate vaccine-derived poliovirus (VDPV) risk by introducing in oral polio vaccine (OPV)-using countries at least one dose of inactivated polio vaccine (IPV) by the end of 2015	15/17 countries
	Withdraw the type 2 component of trivalent OPV by April 2016 (or at later specified)	16/16 countries
Maternal and neonatal tetanus elimination	To achieve maternal and neonatal tetanus elimination (defined as <1 neonatal tetanus case/1000 births in each district) in all WPR countries by 2015	34 / 36 countries certified
Measles elimination	<p>(1) By 2012, the Western Pacific Region should eliminate measles</p> <p>(2) National Verification Committees should annually submit progress reports to the Regional Verification Commission describing progress towards measles elimination.</p>	<p>(1) Not yet</p> <p>(2) 13 countries + 2 areas + 1 sub-region submit progress reports to the Regional Verification Committee in 2015</p>
Rubella elimination	<p>(1) All Member States that have not yet introduced rubella-containing vaccine in their routine immunization programmes should do so as soon as possible</p> <p>(2) Rubella case-based data should be submitted to the WHO Regional Office for the Western Pacific</p>	<p>(1) 36/36 countries and regions introduced rubella-containing vaccine in their routine immunization programmes as of 2016</p> <p>(2) 35/36 countries and areas submitted rubella case-based data to WHO WPRO</p>
Accelerated control of hepatitis B	Reduce the seroprevalence of chronic hepatitis B infection, measured through hepatitis B surface antigen (HBsAg), to <1% in 5-year-old children by 2017	Regional HBsAg prevalence <1%

		13 countries verified
Meeting regional vaccination coverage targets	Reach at least 95% national coverage for all vaccines (DTP3+MCV1 used as proxy) used in the national immunization programmes by 2020	Regional coverage 95% 15 countries with coverage $\geq 95\%$
	Reach $>90\%$ in every district for all vaccines used in the national immunization programmes by 2020	91% of the districts in the region reached $\geq 90\%$ coverage 16 countries reached $\geq 90\%$ coverage in all districts
Introduction of new and underutilized vaccines	LICs and MICs introduced at least one new or underutilized vaccine since 2010	8 / 19 countries
Accelerated control of Japanese encephalitis	Accelerate the control of JE by extending vaccination to all JE risk areas where JE incidence exceeds very low levels	7 / 12 (+AUS that introduced JE in risk areas but not in the routine schedule)