



**SDG target 3.3:** by 2030, end the epidemics of AIDS, tuberculosis, malaria and neglected tropical diseases and combat hepatitis, waterborne diseases and other communicable diseases.

**SDG target 3.8:** achieve universal health coverage, including financial risk protection, access to quality essential health care services and access to safe, effective, quality and affordable essential medicines and vaccines for all.

## Fact sheets on sustainable development goals: health targets

# Immunization Systems

Vaccines are universally considered as one of the most successful and cost-effective medical interventions ever introduced. Just between 2010 and 2015, more than 5 million deaths were averted annually by use of vaccinations around the world (1). Vaccines are, therefore, a critical tool to reduce health inequality, ensure the greatest possible protection of health and well-being, promote peaceful and inclusive societies and strengthen the means of implementation for the Sustainable Development Goals (SDGs) (1,2). Action is necessary across sectors and settings to ensure immunization systems are reaching every child or adult with the vaccinations they deserve.

### Overview

A strong immunization system is an integral part of a well-functioning health system (3). It includes:

- a strong political commitment to immunization and a strong community demand for vaccines;
- tailored immunization programmes according to the needs of the population;
- predictable and sustainable funding;
- strong and responsive immunization information systems;
- evidence-based decision-making on immunization; and
- a skilled, engaged and empowered health workforce in immunization programmes.

All of which are needed to deliver and scale-up new vaccines and to improve immunization coverage and equity.



## Immunization systems and SDGs: facts and figures



Immunization has brought about a remarkable reduction in child mortality in the WHO European Region over the past few decades (3).

- Nine of every 10 children in the Region receive at least a basic set of vaccinations during infancy and as a result lead healthier, more productive lives (3).
- In 2015, protection from more vaccine-preventable diseases was provided through the introduction of new vaccines in several countries (4).
- The European Region is among the best performing of WHO regions in the control of vaccine-preventable diseases (4). However, outbreaks of measles, along with cases of diphtheria, pertussis and mumps, in 2016 were a clear reminder of the need of sustained and concerted efforts (5,6):
  - just during the first half of 2017, 5483 measles cases were reported to the WHO Regional Office for Europe (5).
  - across the WHO European Region, health care budgets are under great strain and the lack of political prioritization of immunization in some countries is alarming (4).

### **Achieve universal access to safe, effective, quality and affordable vaccines for all.**

- In the European Region, coverage with the third dose of diphtheria/tetanus/pertussis vaccine (DTP3) at national and subnational levels showed no improvement in 2016 compared with 2014 and 2015, with regional coverage actually declining by 1 percentage point over the two-year period (6).
- The number of Member States in the European Region with  $\geq 95\%$  national DTP3 coverage decreased from 36 in 2014 and 2015 to 31 in 2016, while the milestone for 2018 is 42. In both years, only 36 Member States reached  $>95\%$  national DTP3 coverage (6).
- Shortages of vaccines were reported by 28 Member States of the European Region in 2015 and by 21 Member States in 2016, sometimes causing critical disruptions of services (6).
- On the positive side, vaccine price transparency, with the aim of increasing affordability, has expanded in the WHO European Region, with 34 Member States having shared vaccine price information by the end of 2016 through the WHO Vaccine product price and procurement initiative (6).
- By 2016, 45 Member States in the European Region had officially established a national immunization technical advisory group to provide scientific advice to ministries of health on immunization policy and practice. This signifies a steady increase since 2014 (39 established such advisory groups in 2014) (7).

**Strengthen health systems:** strong health systems are needed to deliver and scale-up new vaccines and to improve immunization coverage and equity.

- In the European Region, some countries have reported having inadequate infrastructure, lack of trained health care workers, interruptions in the supplies of essential commodities, limited capacity to store vaccines and/or a lack of data to track and manage progress for immunization. These represent critical barriers to achieving immunization targets (6).
- Increase health financing: by the end of 2016, 47 Member States had achieved financial sustainability in procuring vaccines (6). Financial sustainability of immunization programmes is critical for the Region's long-term success in controlling the spread of vaccine-preventable diseases.

**Strengthen the health workforce:** outbreaks of preventable diseases and declining immunization coverage in some areas have confirmed the need for greater public and health worker resilience to vaccine safety scares and increased capacity-building within immunization programmes to respond in the event of a vaccine safety-related event (6).

**Strengthen the capacity of countries for early warning, risk reduction and management of national and global health risks:** preparation is key to prevent the spread of vaccine-preventable infections.

- By 2015, 14 WHO European Member States reported having a communication plan in place to respond to any vaccine safety-related event with the potential to erode confidence in vaccines (6).
- Highly proficient and well-integrated reference laboratories are an essential component of surveillance systems. A desk review of the performance of the 67 national and subnational laboratories of the European Measles and Rubella Laboratory Network was conducted in 2016 with 64 laboratories fully accredited and the remaining three provisionally accredited (6).
- The WHO Regional Polio Laboratory Network, the largest component of the global network, consists of 47 laboratories in 37 countries. All laboratories of the European Region underwent a process of WHO annual accreditation and were fully accredited in 2016 (6).
- In 2016, 100% of polio laboratories in the European Region had transitioned fully to the new WHO virus isolation diagnostic algorithm in accordance with the regional implementation plan (6).



Globally, countries facing the most difficulties achieving the recommended immunization coverage are the middle-income countries (MIC) without funding support (8). This is also the case in the WHO European Region (Fig. 1, Box 1).



The MIC strategy calls for enhanced country commitment to and investments in immunization, increased coordination among international and local partners, international and national advocacy and country-to-country peer learning, and strong monitoring and evaluation efforts. These are all strategic enablers for MIC populations to access vaccines and meet the targets of the Global vaccine action plan (2,8).



These enablers are aligned with targets of SDG 17 to mobilize domestic and international resources, enhance regional and international cooperation on and access to science, technology and innovation, and enhance knowledge sharing (9).

**Promote appropriate legislation, policies and actions:** immunization legislation is a potentially powerful tool in support of sustainable immunization systems and its financing. Legislative action can provide a legal commitment to public funding for immunization, which can help to secure adequate financing and promote accountability and transparency.

- In the WHO European Region, immunization legislation varies across countries. Some countries have separate immunization laws; others legislate immunization through provisions within general health acts or public health laws (6).

**Ensure responsive, inclusive, participatory and representative decision-making at all levels:** societies will demand vaccination as their right and responsibility only if they have confidence in the value and safety of vaccines and in the system that provides them (Box 2).

- Member States report that maintaining the confidence of individuals in vaccinations has become increasingly difficult because of a general mistrust of public institutions, the strong influence of online communications and, in line with these, the growing strength and visibility of anti-vaccine voices (6).
- Outbreaks of preventable diseases and declining immunization coverage in some areas (5,6) have confirmed the need for greater public and health worker resilience to vaccine safety scares and for increased capacity-building within immunization programmes to respond in the event of a vaccine safety-related event.
- Barriers to vaccination are indeed poorly understood in many settings, and challenges persist to identify underserved populations. An increasing number of European Member States are applying social science research to identify underserved population groups and their barriers to vaccination, particularly with the WHO Tailoring immunization programmes approach (11).

## Commitment to act

Guided by the European vaccine action plan 2015-2020 (EVAP), adopted at the 64th session of the European Regional Committee, Member States are working towards 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” (3).

The EVAP, aligned with the Global vaccine action plan (2) and the Decade of Vaccines Collaboration (12), proposes innovative strategies to attain its vision and goals by defining five strategic objectives, priority action areas and a framework to evaluate and monitor progress towards them, all of which will support progress in strengthening immunization systems. The five strategic objectives in the EVAP are:

- all countries commit to immunization as a priority;
- individuals understand the value of immunization services and vaccines and demand vaccination;
- the benefits of vaccination are equitably extended to all people through tailored, innovative strategies;
- strong immunization systems are an integral part of a well-functioning health system; and
- immunization programmes have sustainable access to predictable funding and high-quality supply.

### Box 1. Leaving no one behind..

**Sustainable access to vaccines in middle-income countries (MIC):** the MIC of the WHO European Region, 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 in sustaining the performance of their programmes (8). Comparison of coverage with DTP3 between countries of high and middle incomes, the latter with and without external funding, indicate the issues facing MICs (Fig. 1).

The declining trend in coverage of all antigens in most MICs (particularly in southeastern Europe) is concerning. This decline is exacerbated by a complacency in translation of the political commitments into action at the country level. The challenges that MICs face include:

- lack of adequate financial resource commitment to immunization due to competing priorities;
- non-eligibility for external funding (i.e. Global Alliance for Vaccines and Immunization (Gavi));
- difficulty in accessing vaccines at affordable and optimum prices;
- global supply shortages for vaccines; and
- a growing anti-vaccine agenda and visibility.

A special geographical focus is placed on MICs with large populations, where the majority of the unvaccinated live. For this purpose, a global MIC strategy has been proposed to strengthen immunization systems in these countries (8).

Member States in the WHO European Region are encouraged to align, as appropriate, national health policies and strategies and national immunization plans with the aspiration vision of the EVAP, according to their epidemiological situation.

## Box 2. Intersectoral action

**A shared responsibility:** maintaining demand for immunization is just as important as ensuring equitable and sustainable access to vaccines to sustain high coverage. It is indeed a shared responsibility throughout government and society.

With the goal of raising awareness of the importance of immunization and to increase vaccination coverage, every April the European Immunization Week is celebrated across the WHO European Region (6). During this period, Member States engage a wide range of stakeholders to promote the benefits of immunization. In many countries, this includes schools (from primary to middle schools), university students and staff, researchers, epidemiologists, medical students and health care professionals, the media and parents' groups. The WHO Regional Office for Europe coordinates and supports the campaign, which takes place in unison with the global initiative World Immunization Week.

In addition to collaborating with national health authorities, professional associations and other stakeholders, the WHO Regional Office for Europe is proud to work with many international partners to make European Immunization Week a success (10).

## Monitoring progress

The WHO Regional Office for Europe is developing a joint monitoring framework for the SDG, Health 2020 and noncommunicable diseases indicators<sup>1</sup> to facilitate reporting in Member States and to provide a consistent and timely way to measure progress. The elimination and eradication of vaccine-preventable diseases are among the Health 2020 targets (13). The following, as proposed in the global indicators' framework of the United Nations Economic and Social Council (ECOSOC), will support monitoring progress in immunization systems strengthening (14). In addition, disease-specific monitoring processes for Member State reporting to WHO (6, 15) will support tracking of progress targets outlined in the European Vaccine action plan (3).

### ECOSOC indicators

**3.8.1. Coverage of essential health services (defined as the average coverage of essential services based on tracer interventions that include reproductive, maternal, newborn and child health, infectious diseases, noncommunicable diseases and service capacity and access, among the general and the most disadvantaged population)**

**3.b.1. Portion of the target population covered by all vaccines included in their national programme**

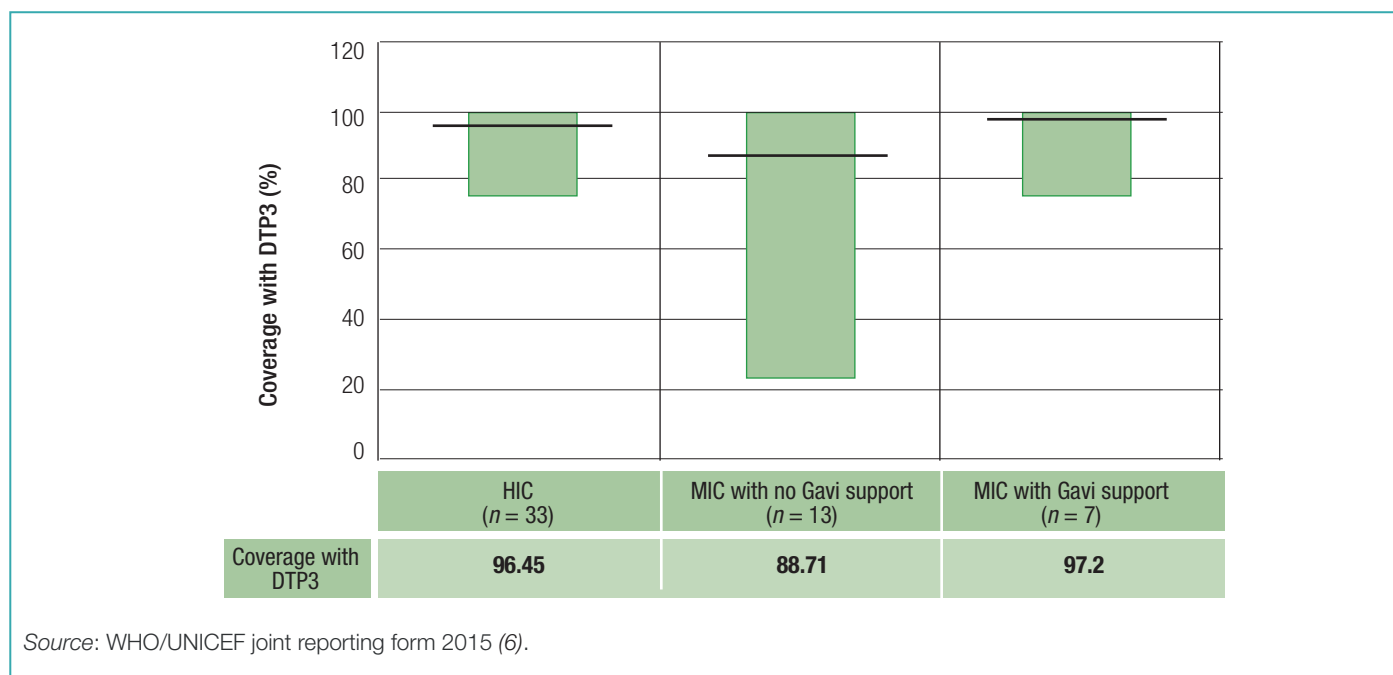
### Health 2020 core indicators

(5)1.2.a. Percentage of children vaccinated against measles (one dose by second birthday), polio (three doses by first birthday) and rubella (one dose by second birthday)

(8) 3.1.a. Infant mortality per 1000 live births, disaggregated by sex

<sup>1</sup> EUR/RC67/Inf.Doc./1: joint monitoring framework: proposal for reducing the reporting burden on Member States.

Fig.1. Comparison of coverage with DTP3 between high-income countries (HIC) and MIC with and without Gavi support (weighted average), WHO European Region 2015



## WHO support to its Member States

WHO acts as the global authority on immunization in accordance with its constitution and obligation to its 194 Member States. In an increasingly interdependent global environment, WHO's mission is to support all countries to deliver quality immunization services as part of an integrated, people-centred platform of disease prevention that spans the human life-course. WHO support focuses on its core roles in immunization (1) to:

- set norms and standards;
- convene global expertise;
- develop, promote and facilitate adoption of new guidelines; and
- monitor national and global achievements and progress.

WHO's recommendations are mainly supported by the Strategic Advisory Group of Experts (SAGE), established since 1999 to advise WHO on overall global policies and strategies, ranging from vaccines and technology, research and development, to delivery of immunization and its linkages with other health interventions.

The WHO Regional Office for Europe provides support to Member States to:

- develop effective vaccine management improvement plans;
- strengthen immunization supply chains;
- assist with advocacy and technical issues for institutionalizing best vaccine management practices through policy, regulatory frameworks and quality management systems;
- develop national transition plans for those countries transitioning from donor support;
- sustain vaccine confidence and demand by upgrading Member States' capacities for reacting to adverse events following immunization; and
- strengthen health systems to provide strong immunization programmes.

## Partners

WHO collaborates with the following partners to strengthen immunization systems:

- European Centre for Disease Prevention and Control
- Gavi
- Sabin Vaccine Institute
- United Nations Children's Fund
- United Nations Foundation – Measles and Rubella Initiative
- United States Centers for Disease Control and Prevention
- World Bank

## Resources

- Global vaccine action plan 2011–2020  
[http://www.who.int/immunization/global\\_vaccine\\_action\\_plan/GVAP\\_doc\\_2011\\_2020/en/](http://www.who.int/immunization/global_vaccine_action_plan/GVAP_doc_2011_2020/en/)
- European vaccine action plan 2015–2020  
[http://www.euro.who.int/\\_\\_data/assets/pdf\\_file/0007/255679/WHO\\_EVAP\\_UK\\_v30\\_WEBx.pdf?ua=1](http://www.euro.who.int/__data/assets/pdf_file/0007/255679/WHO_EVAP_UK_v30_WEBx.pdf?ua=1)
- MIC strategy  
[http://www.who.int/immunization/programmes\\_systems/sustainability/mic\\_strategy/en/](http://www.who.int/immunization/programmes_systems/sustainability/mic_strategy/en/)
- National advisory committees on immunization resource centre  
<http://www.nitag-resource.org/>

## Key definitions

- **Basic vaccination set.** For the purpose of this document, the basic set of vaccines during infancy refers to Bacillus Calmette–Guérin vaccine (BCG for tuberculosis), DTP, polio, hepatitis and measles vaccines.
- **Fully immunized child.** For the purpose of this document, fully immunized child refers to a child who has received all the vaccines in the national immunization schedule by the second birthday, with appropriate timing and sequencing.

## References

1. WHO's vision and mission in immunization and vaccines 2015–2030. Geneva: World Health Organization; 2015 ([http://www.who.int/immunization/documents/general/WHO\\_Mission\\_Vision\\_Immunization\\_Vaccines\\_2015\\_2030.pdf?ua=1](http://www.who.int/immunization/documents/general/WHO_Mission_Vision_Immunization_Vaccines_2015_2030.pdf?ua=1), accessed 15 August 2017).
2. Global vaccine action plan 2011–2020. Geneva: World Health Organization; 2013 ([http://www.who.int/immunization/global\\_vaccine\\_action\\_plan/GVAP\\_doc\\_2011\\_2020/en/](http://www.who.int/immunization/global_vaccine_action_plan/GVAP_doc_2011_2020/en/), accessed 19 August 2017).
3. European vaccine action plan 2015–2020. Copenhagen: WHO Regional Office for Europe; 2014 ([http://www.euro.who.int/\\_\\_data/assets/pdf\\_file/0007/255679/WHO\\_EVAP\\_UK\\_v30\\_WEBx.pdf?ua=1](http://www.euro.who.int/__data/assets/pdf_file/0007/255679/WHO_EVAP_UK_v30_WEBx.pdf?ua=1), accessed 19 August 2017).
4. Immunization highlights 2015. Copenhagen: WHO Regional Office for Europe; 2016 ([http://www.euro.who.int/\\_\\_data/assets/pdf\\_file/0018/307620/Immunization-highlights-2015.pdf](http://www.euro.who.int/__data/assets/pdf_file/0018/307620/Immunization-highlights-2015.pdf), accessed 15 August 2017).
5. Centralized information system for infectious diseases: measles and rubella data. Copenhagen: WHO Regional Office for Europe; 2005 (<http://data.euro.who.int/cisid/>, accessed 15 August 2017).
6. WHO/UNICEF joint reporting process [website]. Geneva: World Health Organization; 2017 ([http://www.who.int/immunization/monitoring\\_surveillance/routine/reporting/en/](http://www.who.int/immunization/monitoring_surveillance/routine/reporting/en/), accessed 15 August 2017).
7. National advisory committees on immunization [website]. Geneva: World Health Organization; 2016 ([http://www.who.int/immunization/sage/national\\_advisory\\_committees/en/](http://www.who.int/immunization/sage/national_advisory_committees/en/), accessed 15 August 2017).
8. Sustainable access to vaccines in middle-income countries (MICs): a shared partner strategy. Geneva: World Health Organization; 2015 (Report of the WHO-Convened MIC Task Force; [http://www.who.int/immunization/sage/meetings/2015/april/Cernuschi\\_MIC\\_Strategy\\_SAGE\\_Apr2015.pdf?ua=1&ua=1](http://www.who.int/immunization/sage/meetings/2015/april/Cernuschi_MIC_Strategy_SAGE_Apr2015.pdf?ua=1&ua=1), accessed 15 August 2017).
9. Draft outcome document of the United Nations summit for the adoption of the post-2015 development agenda. New York: United Nations General Assembly; 2015 (A/69L.85; [http://www.un.org/ga/search/view\\_doc.asp?symbol=A/69/L.85&Lang=E](http://www.un.org/ga/search/view_doc.asp?symbol=A/69/L.85&Lang=E), accessed 15 August 2017).
10. Highlights of European immunization week 2017: narrative report. Copenhagen: WHO Regional Office for Europe; 2017 ([http://www.euro.who.int/\\_\\_data/assets/pdf\\_file/0003/341157/EIW2017-narrative-report.pdf?ua=1](http://www.euro.who.int/__data/assets/pdf_file/0003/341157/EIW2017-narrative-report.pdf?ua=1), accessed 15 August 2017).
11. Tailoring immunization programmes to reach underserved groups. Copenhagen: WHO Regional Office for Europe; 2017 (<http://www.euro.who.int/en/health-topics/communicable-diseases/measles-and-rubella/activities/tailoring-immunization-programmes-to-reach-underserved-groups-the-tip-approach>, accessed 19 August 2017).
12. Decade of vaccines collaboration. Geneva: Global Alliance for Vaccines and Immunization; 2010 (<http://www.gavi.org/about/ghd/dov/>, accessed 19 August 2017).

13. Targets and indicator for Health 2020, version 3. Copenhagen: WHO Regional Office for Europe; 2016 ([http://www.euro.who.int/\\_\\_data/assets/pdf\\_file/0011/317936/Targets-indicators-Health-2020-version3.pdf](http://www.euro.who.int/__data/assets/pdf_file/0011/317936/Targets-indicators-Health-2020-version3.pdf), accessed 19 August 2017).
14. Statistical Commission report E/2017/24 on the 48th session. New York: United Nations; 2017 (<https://unstats.un.org/unsd/statcom/48th-session/documents/Report-on-the-48th-session-of-the-statistical-commission-E.pdf>, accessed 19 August 2017).
15. Centralized information system for infectious diseases: immunization programme indicators [online database]. Copenhagen: WHO Regional Office for Europe; 2016. <http://data.euro.who.int/cisid/?TabID=434597>, accessed 19 August 2017).

URL: [www.euro.who.int/sdgs](http://www.euro.who.int/sdgs)

© World Health Organization 2017. All rights reserved.

The Regional Office for Europe of the World Health Organization welcomes requests for permission to reproduce or translate its publications, in part or in full.

**World Health Organization Regional Office for Europe**  
UN City, Marmorvej 51, DK-2100 Copenhagen Ø, Denmark  
Tel.: +45 45 33 70 00 Fax: +45 45 33 70 01  
E-mail: [euvaccine@who.int](mailto:euvaccine@who.int)