



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

Measles and Rubella

An investment in measles and rubella elimination is an investment in the health and future of both children and adults and will contribute to achieving the health-related targets of Sustainable Development Goals (SDGs) affecting health security, poverty, education, gender equality and economic growth (1,2). Action is necessary across sectors and settings to eliminate measles and rubella.

Overview

Measles and rubella infections, with potentially serious complications such as congenital rubella syndrome (CRS), are preventable through immunization (3,4). All countries in the WHO European Region include highly effective and safe measles and rubella vaccines in their vaccination programmes. However, because of persistent gaps in immunization coverage, outbreaks of measles and rubella continue to occur (5).

- Measles, a highly infectious vaccine-preventable disease, remains one of the main causes of childhood mortality, leading to an estimated 450 deaths each day worldwide (4). It is transmitted via droplets from the nose, mouth or throat of infected people. Initial symptoms, which usually appear 10–12 days after infection, include high fever, runny nose, bloodshot eyes and tiny white spots on the inside of the mouth. A rash develops several days later, starting on the face and upper neck and gradually spreading downwards. The most serious complications of measles include blindness, encephalitis (an infection that causes brain swelling), severe diarrhoea and related dehydration, ear infections and severe respiratory infections such as pneumonia (4).
- Rubella is an infection transmitted in airborne droplets when infected people sneeze or cough. It is usually mild when experienced in childhood and young adults worldwide. However, when an unprotected woman acquires rubella infection just before conception and in early pregnancy, it can result in miscarriage and in serious and sometimes fatal complications in the fetus, such as fetal death or congenital defects (CRS). Children with CRS can suffer hearing impairments, eye and heart defects and other lifelong disabilities, including autism, diabetes mellitus and thyroid dysfunction – many of which require costly therapy, surgeries and other expensive care (6).



Measles and rubella elimination and SDGs: facts and figures



The WHO European Region has made steady progress towards elimination of measles and rubella in recent years (Fig. 1).

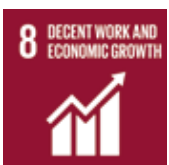
- Of its 53 Member States, 42 had interrupted endemic transmission of both diseases by the end of 2016 (7,8).

There are, however, ongoing challenges:

- measles can spread among individuals of all ages, but it may disproportionately affect groups at particular risk, such as health care workers, Roma communities, displaced individuals and members of certain philosophical or religious communities who choose not to be vaccinated (Box 1) (3,9).
- for the first half of 2017, 9 386 measles cases were reported to WHO, with Germany, Italy, Romania, Ukraine and Tajikistan together constituting 84% of the total (10).
- immunization programmes face challenges in their efforts to eliminate measles and rubella, as outlined by EVAP, which include lack of commitment, immunity gaps, vaccine hesitancy and refusals, and gaps in surveillance and reporting (10).

Universal health coverage: a measles outbreak demands a range of responses from a health system that can be avoided through effective vaccination. Achieving the goal of $\geq 95\%$ coverage with both doses of the vaccine in order to achieve the eradication of the disease globally is a cost-effective intervention (11).

- Estimate of the health care costs of a measles outbreak in the Netherlands during 2013–2014 was around €3.9 million, with 2700 reported cases (9).
- Considering the human and health care costs of measles, achieving high vaccination coverage costs considerably less than an outbreak of measles, economically as well as medically (11).
- Vaccination-related improvements in physical and cognitive test scores in children have had a return on investment as high as 21% (12).
- Children who live free from vaccine-preventable infectious diseases and their lifelong sequelae, such as from measles and rubella, are likely to become young workers with more personal achievements and longer, more satisfying personal working lives, reaching economic independence earlier in life (12).
- Vaccination is one of the most gender-equitable public health interventions available (13).
- Reduction in the incidence rates of diseases affecting primarily children, such as through measles vaccination, will allow mothers and female carers to reduce the time they have to devote to sick children, especially in countries where women bear the main responsibility for childcare.



The short-term impact of measles infection on health-related quality of life is substantial, both at the level of the individual patient and in terms of the overall disease burden. In addition to the effects on society, measles outbreaks have economic consequences, including direct medical costs and productivity losses (14).

- A study examining the effects of measles on productivity in England found that those individuals with confirmed measles had to spend time off work or school, with a mean reported time of 9.6 days for the affected person and 7.3 days for carers (15).
- Complications from measles also affect quality of life and incur high financial costs, as shown in the extensive rehabilitation care needed by a patient with encephalitis after measles infection in the outbreak in the Netherlands in 2013–2014; costs beyond health care during this outbreak were estimated at around €1.8 million (9).
- Without the burden of the disease, family members work hours have fewer constraints and they have greater economic independence; less money is spent on medicines or medical care, and communities can benefit from healthier workforces.

Commitment to act

All WHO regions have established a goal to eliminate measles (and also rubella in some regions). In the European Region, all 53 Member States have committed to elimination of both measles and rubella. In the September 2010 meeting of the WHO European Regional Committee, Member States renewed their commitment to eliminate measles and rubella and prevent CRS by using a combination of effective strategies (16). At the WHO European Regional Committee meeting in September 2014, all Member States reaffirmed their commitment to the goal of measles and rubella elimination as part of their endorsement of the European Vaccine Action Plan 2015–2020 (EVAP) (17,18).

Box 1. Leaving no one behind...

Targeting vulnerable populations along with the general population for vaccination: every un- or underimmunized person regardless of age is at risk of contracting measles, especially in countries with low immunization rates. Recent outbreaks in some European countries indicate that measles can spread among individuals of all ages, but it may disproportionately affect groups at particular risk, such as health care workers, Roma communities, displaced individuals and members of certain philosophical or religious communities who choose not to be vaccinated (3,9). Achieving measles elimination in the Region involves targeting these vulnerable populations along with the general population for vaccination using appropriate tailored strategies. Efforts to provide two timely doses of measles- and rubella-containing vaccine to every eligible child, together with catch-up opportunities for adults, and to ensure robust disease surveillance are in line with the principles of measles and rubella elimination.

Elimination of measles and rubella will depend largely on:

- obtaining political commitment (EVAP objective 1);
- achieving high coverage and closing immunity gaps (EVAP objectives 2 and 3); and
- ensuring high-quality, case-based surveillance (EVAP objective 4).

Strategic and effective approaches to achieve measles and rubella elimination, as laid out in EVAP 2015–2020 (18), are in line with the Global Measles and Rubella Strategic Plan 2012–2020 (19) and the Global Vaccine Action Plan (20).

During the meeting of the Strategic Advisory Group of Experts on Immunization in 2016, a call was made for national immunization systems to demonstrate stronger leadership and governance, as this is pivotal to the measles and rubella elimination efforts of the Region (Box 2) (21,22).

Box 2. Intersectoral action

Successful national measles and rubella vaccination campaign: nearly 2 million children aged 1–9 years were vaccinated against measles and rubella during a nationwide vaccination campaign in Tajikistan on 15–26 May 2017.

Under the auspices of the Ministry of Health and Social Protection of Population, and with joint support from WHO and United Nations Children's Fund (UNICEF) country offices, the campaign achieved more than 98% coverage of the target group. Health centres and outreach initiatives provided vaccination coverage in cities and rural areas, and mobile teams visited remote mountainous areas.

The Ministry of Health and Social Protection of Population, with overall support from the Government of Tajikistan, coordinated and managed the vaccination campaign. The proper planning and effective teamwork of national professionals and international experts ensured the campaign's success (23).

Monitoring progress

The WHO Regional Office for Europe is developing a joint monitoring framework for the SDG, Health 2020 and noncommunicable diseases indicators¹ to facilitate reporting in Member States and to provide a consistent and timely way to measure progress. Failure to eliminate measles and rubella will compromise achieving Health 2020 targets (24). The following, as proposed in the global indicators' framework of the United Nations Economic and Social Council (ECOSOC), will support monitoring of progress in achieving measles and rubella elimination (25). In addition, disease-specific monitoring reporting by Member State to WHO² will support tracking of progress toward measles- and rubella-specific targets outlined in the European Vaccine Action Plan (17) (Fig.1).

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)

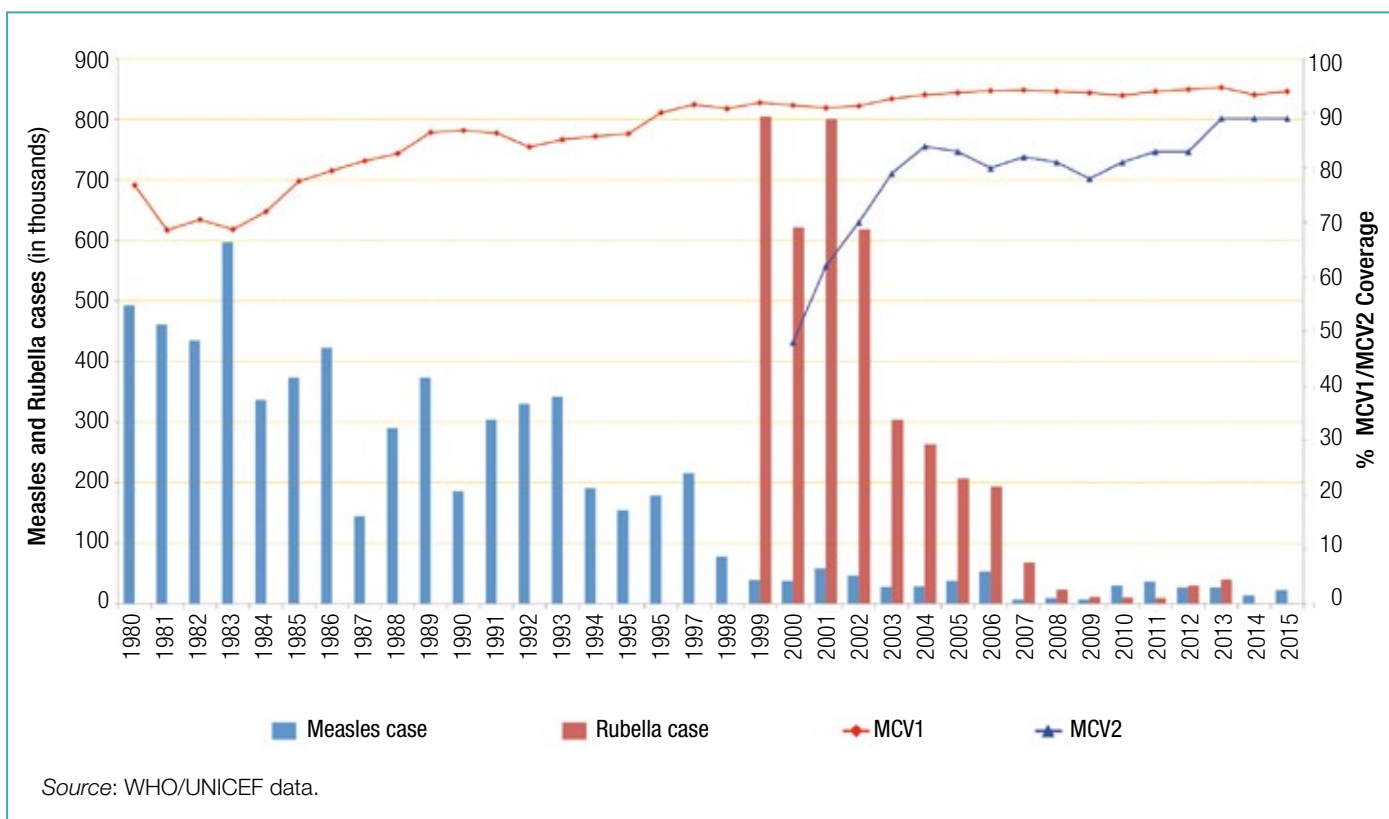
3.b.1. Portion of the target population covered by all vaccines included in the national programme

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

Fig. 1. Measles and rubella cases and coverage with the first (MCV1) and second (MCV2) doses of vaccine for measles in the WHO European Region, 1980–2015



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

² WHO centralized information system for infectious diseases and WHO/UNICEF Joint reporting form.

WHO support to its Member States

Eliminating measles and rubella is a priority for the WHO Regional Office for Europe and central to its vision as laid out in EVAP of a European Region free of vaccine-preventable diseases (18).

Recognizing the need for scaled-up support from WHO and other partners, the WHO Regional Office for Europe introduced a package of accelerated actions in 2013, which included stepped up technical support for priority endemic countries (26). Advocacy support involving the Regional Director and other senior officials of the WHO European Region has further enhanced this package. Based on identified determinants of immunization and surveillance performance, interventions and priority activities, the European Regional Office is developing country profiles that outline the challenges faced by each country in the European Region. These profiles will be used to further scale up support and accelerate elimination efforts in each of the remaining countries with endemic measles and rubella.

Partners

WHO collaborates with the following partners to eliminate measles and rubella:

- American Red Cross (ARC)
- Bill and Melinda Gates Foundation, United States
- Centers for Disease Control and Prevention, United States (CDC)
- European Centre for Disease Prevention and Control
- GAVI Alliance
- Lions Clubs International
- Measles and Rubella Initiative: CDC, ARC, UNF, UNICEF and WHO.
- United Nations Children's Fund (UNICEF)
- United Nations Foundation (UNF).

Resources

- Global vaccine action plan
http://apps.who.int/iris/bitstream/10665/78141/1/9789241504980_eng.pdf?ua=1
- Global measles and rubella strategic plan 2012–2020
http://apps.who.int/iris/bitstream/10665/44855/1/9789241503396_eng.pdf
- Measles and rubella global strategic plan 2012–2020 midterm review
http://www.who.int/immunization/sage/meetings/2016/october/1_MTR_Report_Final_Color_Sept_20_v2.pdf
- EVAP 2015–2020
http://www.euro.who.int/__data/assets/pdf_file/0007/255679/WHO_EVAP_UK_v30_WEBx.pdf?ua=1
- Eliminating measles and rubella: framework for the verification process in the WHO European Region
http://www.euro.who.int/__data/assets/pdf_file/0009/247356/Eliminating-measles-and-rubella-Framework-for-the-verification-process-in-the-WHO-European-Region.pdf?ua=1

Key definitions

- **Measles elimination.** The absence of endemic measles or rubella cases in a defined geographical area for a period of at least 12 months, in the presence of a well-performing surveillance system. Regional elimination can be declared after 36 or more months of the absence of endemic measles or rubella in all Member States.
- **Endemic transmission.** Continuous transmission of indigenous or imported measles or rubella virus that persists for a period of 12 months or more in a defined geographical area.

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URL: www.euro.who.int/sdgs

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