

SURVEILLANCE REPORT

Measles

Annual Epidemiological Report for 2024

Key facts

- In 2024, a total of 35 212 measles cases were reported across the EU/EEA, marking a notable increase (ten-fold), from the 3 973 cases reported in 2023; in addition, cases reported followed a seasonal pattern, after a period (2021-23) in which the typical pattern was not evident. Measles activity had already begun to increase in 2023 after a period of unusually low activity during 2020–2022, coinciding with the COVID-19 pandemic.
- The overall notification rate in 2024 was 77.4 cases per 1 000 000 population, which was substantially higher compared to 9.1 in 2023, and notably exceeding pre-pandemic levels observed in 2019 (27.2 cases per 1 000 000). Romania reported the highest notification rate at 1 610.7 cases per 1 000 000 population, accounting for approximately 87% (30 692) of all EU/EEA cases, followed by Austria (59.5), Belgium (44.9) and Ireland (39.6) per 1,000,000 population.
- In 2024, measles cases were reported among all age groups, and infants under one year of age were the most affected group, with a notification rate of 1 175.4 cases per 1 000 000 population, followed by children aged 1–4 years (688.7 cases per 1 000 000). Individuals above the age of 14 years represented 26% of the overall reported cases; some countries reported the majority of cases (range:28-53%) in individuals above 30 years of age. A total of 14 of the 23 measles deaths reported in 2024 (22 of which from Romania), were observed in children below five years of age.
- Of the cases with known vaccination status in 2024, 87% (27 692) were unvaccinated, and a total of 90% of children between the ages of one and four years were unvaccinated. Children in this age group are those who are targeted for the first dose of measles vaccination in EU/EEA countries, and sometimes the second dose.
- The observed vaccine coverage estimates indicate that in many countries, routine childhood vaccination against measles remains below the recommended level to achieve and sustain measles elimination, with average weighted vaccination coverage for the first dose of measles containing vaccine (MCV1) in the EU/EEA declining slightly in 2024 (93.9%) compared to 2023 (94.2%). Only four countries in the EU/EEA reached the ≥95% threshold for the second dose of measles-containing vaccine in 2024. In two countries there was a positive upward trend of 3% or above (range up to 7%) when comparing the estimates from 2020 to 2023 for the first dose, as well as an upward trend in four countries for the second dose. A downward trend of 3% or more was observed in eight countries, for both the first and the second dose.
- Accelerated efforts are needed to increase vaccination coverage and uptake of both routine childhood immunisation and catch-up campaigns in adolescents and adults who have missed vaccination in the past. To this end, the deployment of upgraded digitalised immunisation information systems to identify and reach the unvaccinated is critical and should form an integral part of national efforts to improve the performance and management of the overall national immunisation programmes. Continuous highquality surveillance and prompt outbreak investigations are also key tools to closely monitor measles epidemiology in the EU/EEA and identify and address immunity gaps in the population.

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Introduction

Measles is an acute, highly contagious viral disease capable of causing epidemics. It is caused by a single-stranded ribonucleic acid (RNA) virus of the genus Morbillivirus and the family Paramyxoviridae. The virus is transmitted from person-to-person via respiratory droplets produced when infected people cough and sneeze. Virus-containing droplets can remain in the air for several hours, and the virus remains infectious on contaminated surfaces for up to two hours [1]. It is characterised by symptoms such as high fever, cough, runny nose, inflamed eyes, and a distinctive red rash that spreads across the body. Complications can be severe and include pneumonia, hearing loss, encephalitis, and death [1].

Measles is extremely infectious and it is estimated that 90% of non-immune people exposed to an individual with the infection will contract the disease. Mathematical models estimate the basic reproductive number at 12–18, i.e. the average number of secondary infections that follow a single introduction into a susceptible population. Immunisation against measles started in the 1960s and has dramatically reduced the incidence of measles in Europe. But despite overall high immunisation coverage, measles continues to circulate. Globally, measles remains a leading cause of childhood death, and an estimated 140 000 children die each year from complications caused by the disease.

Measles prevention at the individual level requires two doses of a measles-containing vaccine (MCV). At population level, achieving and sustaining a vaccination coverage of at least 95% with two doses is essential to control the spread of the disease and prevent outbreaks. Immunisation remains the cornerstone of measles control and outbreak prevention [1, 2].

Methods

This report is based on data for 2024 retrieved from EpiPulse Cases on 20 March 2025. EpiPulse Cases is a newly introduced system for the collection, analysis and dissemination of data on communicable diseases that replaced The European Surveillance System (TESSy) in October 2024.

For a detailed description of methods used to produce this report, please refer to the 'Methods' chapter [3]. An overview of the national surveillance systems is available online [4].

A subset of the data used for this report is available through ECDC's online 'Surveillance atlas of infectious diseases'[5] and the Monthly Measles and Rubella Reports [6] where additional information may also be found in relation to surveillance systems and historical changes to surveillance, as well as possibility to download datasets and additional visualisations.

ECDC has coordinated the surveillance of measles at the European level since the transfer of EUVAC.NET (European surveillance network for selected vaccine-preventable diseases, hosted by Statens Serum Institute, Denmark) to ECDC in 2011. Thirty European Union/European Economic Area (EU/EEA) Member States report measles data to ECDC. The 2008, 2012, or 2018 EU case definition [4, 7] are used by 27 countries and the majority report data from comprehensive, passive surveillance systems with national coverage. Belgium has reported aggregated data since 2017, and Poland from (and including) April 2019. Up to December 2020, thirty countries (29 EU countries plus the UK) reported measles data on a routine basis. The United Kingdom (UK) stopped reporting measles cases to TESSy in December 2020¹.

Data submitted by EU/EEA Member States are shared with the WHO Regional Office for Europe monthly as part of the measles surveillance of the WHO European Region. Vaccination coverage estimates presented in this report were obtained from the *WHO Global Health Observatory* website, WUENIC estimates [8]. The method of calculating MCV1 and MCV2 coverage are outlined in the metadata available for each indicator online [9].

Epidemiology

In the EU/EEA, measles activity began to increase in 2023 after a period of unusually low activity during 2020–2022, coinciding with the COVID-19 pandemic [2]. In 2024, a total of 35 212 cases of measles were reported across the EU/EEA, marking a notable increase from the 3 973 cases reported in 2023. All 28 EU/EEA countries reported measles activity in 2024, and two countries (Latvia and Liechtenstein) reported zero cases (Table 1, Figure 1). Romania accounted for the vast majority of reported cases (87%), with a total of 30 692 cases. The overall notification rate increased significantly in 2024 to 77.4 cases per 1 000 000 population, compared to 9.1 in 2023, 0.3 in 2022, 0.2 in 2021, and 4.6 in 2020, and it was also higher than the pre-pandemic rate in 2019 (27.2) [10] (Table 1, Figure 1).

¹ The United Kingdom (UK) was a former Member State of the European Union (EU). The UK withdrew from the EU on 31 January 2020, but continued reporting measles cases to TESSy till December 2020.

Notification rates varied widely across EU/EEA countries, ranging from 0 in Latvia and Liechtenstein to a high of 1 610.7 cases per 1 000 000 population in Romania. Other countries reporting high notification rates included Austria (59.5 cases per 1 000 000), Belgium (44.9), and Ireland (39.6). (Table 1, Figure 2)

The number of cases reported in 2024 are the highest reported in the previous five years. This number also exceeded the total number of cases reported in 2019 (pre COVID-19), which was 12 320 cases [10].

Table 1. Measles cases and rates per 1 000 000 population by country and year, EU/EEA ar	id the UK,
2020–2024	

Country	2020		2021		2022		2023		2024		
	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate	ASR
Austria	25	2.8	1	0.1	1	0.1	186	20.4	542	59.5	66.9
Belgium	66	5.7	7	0.6	19	1.6	68	5.8	527	44.9	NRC
Bulgaria	257	39.1	0	NRC	1	0.2	0	NRC	27	4.2	4.8
Croatia	0	NRC	0	NRC	0	NRC	3	0.8	33	8.6	9.3
Cyprus	1	1.1	1	1.1	0	NRC	0	NRC	27	29.3	28.7
Czechia	4	0.4	0	NRC	0	NRC	1	0.1	35	3.2	3.4
Denmark	4	0.7	0	NRC	0	NRC	9	1.5	25	4.2	4.5
Estonia	0	NRC	0	NRC	0	NRC	4	2.9	4	2.9	3.0
Finland	5	0.9	3	0.5	1	0.2	1	0.2	2	0.4	0.4
France	240	3.6	16	0.2	19	0.3	117	1.7	484	7.1	7.5
Germany	76	0.9	8	0.1	15	0.2	79	0.9	638	7.6	8.7
Greece	2	0.2	0	NRC	0	NRC	0	NRC	36	3.5	3.8
Hungary	0	NRC	0	NRC	0	NRC	1	0.1	18	1.9	2.1
Iceland	0	NRC	0	NRC	0	NRC	0	NRC	2	5.2	5.0
Ireland	19	3.8	0	NRC	2	0.4	4	0.8	209	39.6	36.7
Italy	105	1.8	8	0.1	15	0.3	44	0.7	1 057	17.9	22.1
Latvia	0	NRC	0	NRC	0	NRC	1	0.5	0	NRC	NRC
Liechtenstein	NDR	NRC	NDR	NRC	0	0.0	3	75.6	0	NRC	NRC
Lithuania	2	0.7	0	NRC	0	NRC	3	1.0	30	10.5	10.2
Luxembourg	0	NRC	0	NRC	0	NRC	0	NRC	3	4.5	4.4
Malta	2	3.9	0	NRC	0	NRC	0	NRC	10	18.4	20.0
Netherlands	2	0.1	0	NRC	6	0.3	7	0.4	205	11.5	12.2
Norway	4	0.7	0	NRC	1	0.2	2	0.4	7	1.3	1.3
Poland	29	0.8	13	0.4	27	0.7	37	1.0	285	7.8	8.2
Portugal	9	0.9	0	NRC	0	NRC	1	0.1	35	3.3	4.1
Romania	1 004	51.9	0	NRC	10	0.5	3 371	176.9	30 692	1 610.7	1 690.0
Slovakia	0	NRC	0	NRC	0	NRC	6	1.1	5	0.9	1.0
Slovenia	6	2.9	0	NRC	0	NRC	1	0.5	17	8.0	9.1
Spain	93	2.0	2	0.0	1	0.0	13	0.3	220	4.6	5.4
Sweden	5	0.5	0	NRC	5	0.5	11	1.0	37	3.5	3.7
EU/EEA (30 countries)	1 960	4.6	59	0.2	123	0.3	3 973	9.1	35 212	77.4	81.7
United Kingdom	83	1.2	NA	NA	NA	NA	NA	NA	NA	NA	NA
EU/EEA (31 countries)	2 043	4.1	NA	NA	NA	NA	NA	NA	NA	NA	NA

Source: Country reports. ASR: Age-standardised rate.

NDR: No data reported.

NRC: No rate calculated.

NA: Not applicable.

No data from 2021 onwards were reported by the United Kingdom, due to its withdrawal from the EU on 31 January 2020.



Figure 1. Number of measles cases by country, EU/EEA, 2024

Source: Country reports from Austria, Belgium, Bulgaria, Croatia, Cyprus, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Liechtenstein, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden.

Figure 2. Number of measles cases per 1 000 000 population by country, EU/EEA, 2024



Source: Country reports from Austria, Belgium, Bulgaria, Croatia, Cyprus, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Liechtenstein, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden.

Population data source from Eurostat, access on 25/03/2025

Seasonality and trend

In 2024, measles epidemiology returned to its typical seasonal pattern within the EU/EEA, with the highest number of cases reported from February to July, followed by a gradual decline during the second half of the year (Figure 3). This contrasts with 2023, when measles activity did not follow the usual seasonality pattern and instead increased predominantly in the latter half of the year, diverging from the expected epidemiological trend. The marked resurgence in 2024 emphasises a return to more typical measles seasonal patterns, but at significantly elevated levels compared to the pandemic and pre-pandemic years (Figure 4).





Source: Country reports from Austria, Belgium, Bulgaria, Croatia, Cyprus, Czechia, Denmark, Estonia, Finland, France, Greece, Hungary, Iceland, Ireland, Italy, Lithuania, Luxembourg, Malta, the Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, and Sweden.





Source: Country reports from Austria, Belgium, Bulgaria, Croatia, Cyprus, Czechia, Denmark, Estonia, Finland, France, Greece, Hungary, Iceland, Ireland, Italy, Lithuania, Luxembourg, Malta, the Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, and Sweden.

Age distribution:

In 2024, of the 35 212 measles cases reported, infants under one year of age remained the most affected group, with a notably high notification rate of 1 175.4 cases per 1 000 000 population (13%). The next most affected groups were children aged 1–4 years with a notification rate of 688.7 cases per 1 000 000 (33.1%), followed by children aged 5–9 years with a rate of 247.1 cases per 1 000 000 (16%). The rates progressively decreased with age, recording 169.9 per 1 000 000 among 10–14-year-olds (11.6%), 129.4 per 1 000 000 in the 15–19 age group (8.8%), 45.8 per 1 000 000 among young adults aged 20–29 years (6.5%), and 12.2 per 1 000 000 in individuals aged 30 years and older (10.9%) (Figure 5). Overall, 26.3% of cases were above 14 years of age and 46.1% were below the age of five years which highlights the fact that measles affects all age groups.

The median age of cases across all EU/EEA countries that submitted age-based data in 2024 was five years of age (interquartile range, IQR:2-15), corresponding to 2023, where the median age was 5 as well, while the IQR was 2-12. In 2024, as was the case in 2023, the overall age distribution of cases was heavily influenced by the high number of cases in Romania. In Romania the majority of cases were reported among the 1-4 years old age group accounting for 35.5% of the total cases. In contrast, in several EU/EEA countries the majority of cases reported were among the +30-age group (France: 28.4%, Poland: 34.4%, Spain: 38.5%, Italy: 52.4%).

Figure 5. Measles rates per 1 000 000 population, by age, EU/EEA, 2024



Source: Country reports from Austria, Belgium, Bulgaria, Croatia, Cyprus, Czechia, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Liechtenstein, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, and Sweden.

Vaccination status

Data on vaccination status were available for 31 804 cases (90%) reported in 2024. Of these cases, 27 692 (87%) were unvaccinated, 2 692 (8%) were vaccinated with one dose of measles-containing vaccine, 1 374 (4%) were vaccinated with two or more doses, and 46 cases (0.1%) were vaccinated with an unknown number of doses (Figure 6). The proportion of reported unvaccinated cases for 2024 was the highest observed in the last five years.

Among cases with known vaccination status, the highest proportion of unvaccinated cases by age group was those aged <1 year (98%), a group not routinely targeted with measles-mumps-rubella (MMR) vaccination in most countries, followed by those aged 1–4 years (90%), 5–9 years (84%), and 10-14 years (80%), 15-19 years (78%), 20-29 years (83%), and for +30 years (87%). Vaccination status was more likely to be unknown with increasing age, accounting for 28% and 24% of cases aged 30+ years and 20–29 years, respectively.

For the years 2019–2023, the overall distribution of cases by age group and vaccination status followed the same pattern, with the unvaccinated population of 0–9 years and >20 years of age counting for approximately 80% of the total number of cases (Figure 7).

The proportion of children aged 1–4 years who were unvaccinated in 2024 (90%) remained equally high compared to 2023 (88%) and to what was observed in the period 2019–2022, when 80% of children of this age group were unvaccinated and 98% of children aged <1 year were unvaccinated.

When vaccination status was known and in relation to younger adults (>14 years) and adults >20 years, the majority were not vaccinated or not fully vaccinated (82% and 85% respectively unvaccinated, and 9% and 7% respectively vaccinated only with one dose).





Source: Country reports from Austria, Belgium, Bulgaria, Croatia, Cyprus, Czechia, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Liechtenstein, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden.





Source: Country reports from Austria, Bulgaria, Croatia, Cyprus, Czechia, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Liechtenstein, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden.

Vaccination coverage

Data on vaccination coverage for the first and second dose of measles-containing vaccine were available up to 2023. In 2023, the overall population weighted vaccination coverage for the EU/EEA countries was 93.9% for the first dose and 88.8% for the second dose, which represents a slight decrease compared to previous years (Table 2). Six countries reported a decrease in the vaccination coverage for the first dose of measles in 2023 compared to the coverage reported in 2022, (the highest decrease was reported in Romania (83% in 2022, and 78 in 2023)) and an additional nine countries reported a decrease in coverage for the second dose. Moreover, three countries reported an increase in vaccination coverage for dose one (range 1-2%) and four countries for dose two (1-3%). Fifteen countries (50%) reported a coverage of \geq 95% for dose one and only four countries (14%) (Hungary, Malta, Portugal, and Slovakia) had a coverage of \geq 95% for the second dose (Figure 8, Figure 9). Only three countries had an estimated coverage of \geq 95% for both MCV1 and MCV2 in 2023 (Hungary, Malta, and Portugal).

The percent of change in vaccination coverage between 2020 and 2023 showed some variation. While Austria demonstrated the largest percentage of improvement for the second dose (+6%), Romania experienced the sharpest decline in both doses (-9% for dose one, -13% for dose two). A total of 16 countries showed a decrease in coverage for at least one dose, with declines more pronounced for dose two. The overall EU/EEA vaccination coverage average dropped slightly by 0.5% for MCV1 and 0.8% for MCV2 in 2023 compared to 2020. (Table 2)

Outcome

In 2024, the disease outcome was reported for 31 430 cases (89% of total cases). There were 23 deaths attributable to measles, which was a significant increase compared to previous years. Romania reported the majority of these deaths (22 deaths), with one additional death reported from Ireland. In comparison, three deaths were reported in 2023 retrospectively, and no deaths were reported in the preceding two years (2021–2022), while two deaths occurred in 2020 and ten deaths were recorded in 2019 in EU/EEA countries. This highlights a resurgence in severe measles outcomes in 2024.

When considering the age of the deaths, five cases were in children <1 year old, nine deaths in children between 1-4 years, two deaths in adults between 20-29 years, and seven deaths in the age group over 30 years of age. Sixteen of those who died where unvaccinated, five had only one dose, and two people had unknown vaccination status.

Hospitalisation and complications

Hospitalisation status was available for 31 035 (88%) cases, of which 24 529 (79%) were hospitalised in 2024. Among the hospitalised cases, 20 095 (82%) were unvaccinated. 1 809 (7%) individuals had received one dose of measles-containing vaccine, 739 (3%) individuals had received two or more doses, and 1 886 (8%) individuals had unknown vaccination status. The most hospitalised cases (96%) were reported by Romania. The median age of hospitalised cases reported in the EU/EEA was five years (IQR: 2-15 years).

Among all reported cases in 2024, data on complications were reported for 24 239 (68%) cases, 1 483 of which (6%) had no complications. Reported complications included 6 769 (28%) cases of pneumonia, 187 cases of diarrhoea, 19 cases of otitis media and 10 cases of acute encephalitis. Unspecified complications ('other') were reported for 15 744 (64.9%) cases. Of these 24 239 cases reported with complications, 19 420 (80%) cases were unvaccinated. The median age of the cases presented with complications was five years (IQR: 2–15 years).

Importations

In 2024, importation status was available for 2 866 (8%) cases. Of these cases, 542 (18%) were classified as imported in 2024 and 222 as import-related (7%) meaning the source of infection (exposure) was outside the reporting country. Twenty-six countries reported imported measles cases for 2024, the majority of which were reported by Austria (44), Germany (81), Spain (54), France (86), Italy (52), and Romania (39), accounting for 65% of all imported cases. The median age of these cases was five years (range 0–91 years).

Among the 542 imported cases for which a single probable country of infection was available, most individuals were thought to have acquired their infection in Europe (EU/EEA: 26%, non-EU/EEA: 39%), followed by Asia (22%), and Africa (4%). An unknown origin of infection was reported for 8% of the cases. Of the 68 different countries listed as the likely origin of infection of imported cases, five countries accounted for 50% of these infections: Romania (122), Morocco (53), UK (36), Bosnia and Herzegovina (35), and Italy (25).

The proportion of imported measles cases for 2024 appeared to be higher than 2023 and 2022; 128 (5%) cases and 22 (18%) cases respectively, and higher than the pre-pandemic period as well, which was 62 (3%) cases in 2020, 644 (5%) cases in 2019.

Table 2. Vaccination coverage for first dose of a measles- and rubella-containing vaccine and second dose of a measles-containing vaccine, EU/EEA, 2020–2023

	2020		2021		2022		2023		Percent of change 2020-2023**	
Country	Dose 1	Dose 2	Dose 1	Dose 2						
Austria	95.0	88.0	99.0	97.0	95.0	94.0	95.0	94.0	0%	7%
Belgium	96.0	83.0	96.0	83.0	96.0	83.0	96.0	82.0	0%	-1%
Bulgaria	88.0	84.0	89.0	86.0	91.0	87.0	92.0	87.0	5%	4%
Croatia	91.0	91.0	89.0	90.0	90.0	90.0	90.0	90.0	-1%	-1%
Cyprus	86.0	88.0	86.0	88.0	84.0	88.0	82.0	80.0	-5%	-9%
Czechia	94.0	90.0	97.0	90.0	97.0	90.0	87.0	90.0	-7%	0%
Denmark	94.0	90.0	95.0	94.0	95.0	94.0	95.0	93.0	1%	3%
Estonia	91.0	87.0	89.0	84.0	89.0	84.0	89.0	84.0	-2%	-3%
Finland	95.0	93.0	93.0	93.0	94.0	92.0	94.0	92.0	-1%	-1%
France	94.0	90.0	94.0	91.0	95.0	92.0	95.0	93.0	1%	3%
Germany	97.0	93.0	97.0	93.0	97.0	93.0	97.0	93.0	0%	0%
Greece	97.0	83.0	97.0	83.0	97.0	83.0	97.0	83.0	0%	0%
Hungary	99.0	99.0	99.0	99.0	99.0	99.0	99.0	99.0	0%	0%
Iceland	93.0	93.0	92.0	10.0	91.0	80.0	91.0	89.0	-2%	-4%
Ireland	92.0	NDR	90.0	NDR	90.0	NDR	89.0	NDR	-3%	
Italy	92.0	86.0	94.0	86.0	94.0	85.0	95.0	85.0	3%	-1%
Latvia	99.0	94.0	97.0	85.0	96.0	86.0	96.0	92.0	-3%	-2%
Liechtenstein	NDR									
Lithuania	90.0	91.0	88.0	88.0	87.0	87.0	87.0	86.0	-3%	-5%
Luxembourg	99.0	90.0	99.0	90.0	99.0	90.0	99.0	90.0	0%	0%
Malta	95.0	99.0	90.0	93.0	96.0	95.0	95.0	95.0	0%	-4%
Netherlands	94.0	89.0	93.0	90.0	89.0	85.0	89.0	81.0	-5%	-9%
Norway	97.0	95.0	97.0	95.0	96.0	94.0	96.0	94.0	-1%	-1%
Poland	92.0	86.0	91.0	86.0	91.0	86.0	91.0	86.0	-1%	0%
Portugal	99.0	95.0	98.0	95.0	98.0	96.0	98.0	95.0	-1%	0%
Romania	87.0	75.0	86.0	75.0	83.0	71.0	78.0	62.0	-10%	-17%
Slovakia	96.0	98.0	95.0	96.0	95.0	96.0	94.0	95.0	-2%	-3%
Slovenia	94.0	91.0	95.0	91.0	96.0	92.0	95.0	89.0	1%	-2%
Spain	96.0	94.0	95.0	91.0	96.0	92.0	96.0	92.0	0%	-2%
Sweden	97.0	92.0	97.0	91.0	92.0	91.0	93.0	92.0	-4%	0%
EU/EEA** (30 countries)	94.4	89.5	94.4	89.5	94.2	89.3	93.9	88.8		
United Kingdom	NA									
EU/EEA (31 countries)	NA									

No data from 2021 onwards were reported by the United Kingdom, due to its withdrawal from the EU on 31 January 2020. Source: WHO Immunisation data portal, WUENIC estimates. from Austria, Belgium, Bulgaria, Croatia, Cyprus, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden.

NDR: no data reported; NA: Not applicable.

* Trend was calculated for each dose as the percentage of change between 2023 and 2020, i.e. [(coverage in 2023 – coverage in 2020)/coverage in 2020]

**EU/EEA: population weighted average vaccination coverage rate.



Figure 8. Vaccination coverage for first dose of a measles-containing vaccine, EU/EEA, 2023

Source: WHO Immunisation data portal, WUENIC estimates. from Austria, Belgium, Bulgaria, Croatia, Cyprus, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden.

Figure 9. Vaccination coverage for second dose of a measles-containing vaccine, EU/EEA, 2023



Source: WHO Immunisation data portal, WUENIC estimates. from Austria, Belgium, Bulgaria, Croatia, Cyprus, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden.

Discussion

There was a significant escalation in measles transmission in 2024 compared to previous years, highlighted by the epidemiological data presented above. A total of 35 212 measles cases were reported, resulting in an overall notification rate of 77.4 cases per 1 000 000 population — a significant increase compared to the 2023 rate of 5.3 per 1 000 000 population. Romania continued to report the highest notification rate, with 1 610.7 cases per 1 000 000 population, substantially higher than its 2023 rate (92.2 cases per 1 000 000).

The first half of 2024 showed a particularly sharp increase in measles activity, reaching levels higher than any level recorded over the past two decades, before it declined again toward the end of the year. In response to this rapid rise in cases, ECDC issued a dedicated Threat Assessment Brief emphasising the ongoing public health risk, highlighting concerns around sub-optimal vaccination coverage, the high potential for cross-border transmission, and the anticipated seasonal peak which further compounded the risk [2].

Similar to previous years, measles continued to affect individuals across all age groups in 2024. Infants under one year of age were the most severely impacted, showing the highest incidence at 1 175.4 cases per 1 000 000 population. This population group remains particularly vulnerable since infants under one year are typically too young for direct vaccination and thus rely heavily on population immunity for protection. In 2024, 87% of all cases with known vaccination status were unvaccinated. Among children aged one to four years, who would typically receive their first dose of measles vaccine in national vaccination schedules, the rate remained high at 688.7 per 1 000 000 population, with 90% of these children unvaccinated, underlying the fact that ongoing gaps are present in this critical age group.

The age distribution of measles cases in 2024 reveals a notable difference between the EU/EEA countries. In Romania, over one-third of all cases were in children aged 1–4 years, while in several other countries (e.g. Italy, Spain, France, Poland), the majority of cases occurred in adults aged 30 years and older. This difference may indicate variation in vaccination coverage in the age groups over a longer historical period and the gaps in catch-up vaccination strategies. Romania's sharp drop in MCV1 and MCV2 coverage over recent years, especially among young children, likely facilitated early-age transmission [11]. Conversely, in countries with higher current childhood coverage but missed vaccinations in the past, older cohorts are now more exposed and at risk of infection [12].

Hospitalisation rates for measles cases remained consistently high in 2024, with 79% of reported cases required hospitalisation. This aligns closely with the 2023 hospitalisation rate of 80% but significantly exceeds earlier figures from preceding years (33% in 2022 and 55% in 2019). Additionally, most hospitalised individuals—approximately 85% — were unvaccinated. In 2024, complications from measles were frequently reported, predominantly affecting unvaccinated individuals. Among hospitalised patients, complications such as pneumonia, otitis media, and encephalitis continued to be prevalent. Importantly, 2024 recorded 23 measles-related deaths (of which 22 were reported from Romania), a marked increase compared to the three fatalities reported in 2023. Notably, 14 deaths were reported in children below the age of five years.

While the majority of measles cases reported in 2024 originated from local transmission within EU/EEA countries, among the cases with known importation status, 18% were imported and 7% were imported-related, and together counting for 764 cases, which is significantly higher compared to 2023 (6.4%). Most imported infections were acquired from other European countries, either within the EU/EEA (26%) or non-EU/EEA regions (39%), followed by Asia (22%) and Africa (4%). Importations from Austria, Germany, Spain, France, Italy, and Romania collectively accounted for 65% of these cases. This notable increase in imported measles highlights the need and value of international collaboration, including timely information exchange to prevent further cross-border transmission and outbreaks within the EU/EEA region. In addition, checking and updating vaccination against measles should be a routine practice during travel medicine consultations and general health checks prior to travelling, including those travelling within the EU/EEA [13]. Strengthening exchange of information on cross-border cases via established EU and international channels is important to avoid re-establishment of measles in receiving countries.

All EU/EEA countries have adopted national, publicly funded childhood vaccination programmes targeting measles, mumps, and rubella (MMR). Among these, eleven countries — Bulgaria, Croatia, Czechia, France, Germany (under the Measles Protection Act), Hungary, Italy, Latvia, Poland, Slovakia, and Slovenia—have implemented mandatory MMR vaccination policies, primarily enforced through school-based mechanisms. France (2018), Germany (2019), and Italy (2017) recently introduced mandatory vaccination, with preliminary findings indicating increased vaccination coverage among targeted groups; however, additional analyses are necessary to evaluate the long-term impact and effectiveness of these interventions [14]. Typically, the first MMR dose is scheduled between 12–18 months of age, with earlier administration (9–11 months) recommended in Austria, Germany, Liechtenstein, and Slovenia. The timing of the second dose varies considerably across countries, ranging from early in the second year of life in Austria and Germany to preschool or primary school ages elsewhere. Additionally, catch-up recommendations vary widely, with Spain, for example, extending vaccination opportunities up to 64 years of age [15].

Modelling studies suggest that in countries with substantial immunity gaps, supplementary immunisation strategies targeting individuals not covered by existing programmes may be required to achieve interruption of measles transmission [16].

The latest WHO estimates on national immunisation coverage for 2023 show a slight overall decrease in vaccination coverage within the EU/EEA compared to previous years; however, the estimates remained relatively consistent over the last five years. In 2023, the overall weighted vaccination coverage in the EU/EEA was 93.9% for the first dose (MCV1) and 88.8% for the second dose (MCV2). Six countries reported decreased coverage for the first measles vaccine dose, with Romania experiencing the most significant reduction (from 83% in 2022 to 78% in 2023). Similarly, nine countries reported decreased coverage for the second dose. While fifteen EU/EEA countries (50%) reached the \geq 95% threshold for the first vaccine dose, only four countries (14%)—Hungary, Malta, Portugal, and Slovakia—achieved this threshold for the second dose. This represents a decline compared to the seven countries (Bulgaria, Hungary, Latvia, Malta, Norway, Portugal, and Slovakia) meeting the \geq 95% benchmark for MCV2 in 2019, highlighting persistent challenges in attaining optimal vaccination coverage required for measles elimination. It is also to be noted that in two countries there was a positive upward trend of 3% or above (range up to 7%) when comparing the estimates from 2020 to 2023 for the first dose, and an upward trend in four countries for the second dose. A downward trend of 3% or more was observed in eight countries, both for the first and the second dose.

The European Regional Verification Commission for Measles and Rubella Elimination (RVC), which was established in 2011 [13] monitors the progress of the countries of the WHO European Region in relation to measles and rubella elimination. During the 12th RCV meeting, held in 2023, with reference to the data of 2022, it was concluded that 20 EU/EEA Member States provided evidence to demonstrate the elimination of endemic measles, whereas five countries were considered endemic, three countries were considered to have re-established measles transmission and for one country, the status is still pending [16].

Public health implications

ECDC continues to closely monitor measles activity in the EU/EEA, providing monthly epidemiological updates and assessments to support Member States' public health actions. ECDC continues to recommend the following actions for a public health response: closing immunity gaps through achieving and maintaining \geq 95% vaccination coverage with two doses of measles-containing vaccine, enhancing surveillance quality, ensuring rapid detection, diagnosis, and outbreak control, and raising clinical awareness among healthcare providers. The deployment of upgraded digitalised immunisation information systems to identify and reach the unvaccinated is also critical and should form an integral part of national efforts to improve the performance and management.

Conclusion

In 2024, the EU/EEA region recorded the highest number of measles cases observed in the past two decades, significantly exceeding pre-pandemic levels. This sharp increase underscores persistent immunity gaps and vulnerabilities within the population, exacerbated by suboptimal measles vaccination coverage. Although the impact of the COVID-19 pandemic on immunisation programmes varied by country — with some experiencing declines and others maintaining or slightly improving coverage — most EU/EEA countries have yet to achieve or sustain the \geq 95% vaccination coverage target with two doses of measles-containing vaccine. Enhanced epidemiological surveillance, prompt outbreak investigation, and control measures remain critical for interrupting transmission and achieving regional elimination targets. Urgent action to address existing immunity gaps through targeted catch-up vaccination campaigns, particularly among populations disproportionately impacted by pandemic disruptions are essential. Strengthened public health communication and accelerated efforts to enhance vaccine acceptance remain crucial for restoring high immunisation coverage and preventing future measles outbreaks in the EU/EEA.

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