

SURVEILLANCE REPORT

Measles and rubella monitoring

January 2017

Disease surveillance data: 1 January – 31 December 2016

Main developments

The ECDC measles and rubella monitoring report is published twice a year. The January issue reports on the previous calendar year, while the July issue focuses on the most recent measles and rubella season and presents the data collected over the past 12 months.

Visualised measles and rubella data are available online through the measles [1] and rubella [2] pages of the ECDC Surveillance Atlas of Infectious Diseases, updated monthly. In addition, ECDC produces monthly high-resolution measles maps [3].

Measles

- Between 1 January and 31 December 2016, 3 767 cases of measles were reported by 30 EU/EEA countries. Twenty-eight countries reported consistently throughout this 12-month period.
- Romania accounted for 42% of all cases reported during this period.
- Measles is targeted for elimination in Europe. The measles notification rate was below the elimination target (one case per million population) in 18 of the 30 reporting countries. Eight of these 18 countries reported zero cases. Twelve reporting countries had a notification rate above this indicator, with Romania reporting the highest rate (79.3 cases per million population).
- The diagnosis of measles was confirmed by positive laboratory results (serology, virus detection or isolation) in 69% of all cases.
- The highest age-specific notification rate was observed in infants under one year of age (76.1 cases per million population), followed by children aged 1–4 years (55.3 cases per million population). These were the age groups most affected in Romania. Twenty-eight percent of the cases were ≥ 20 years old.
- Of all cases with known age, 94% had a known vaccination status and of these, 87% were reported as unvaccinated. In the target group for the first dose of routine childhood MMR (measles-mumps-rubella) vaccination (children 1–4-years), 84% of all cases were unvaccinated. Some countries also administer the second dose in this age group.
- During the period 1 January to 31 December 2016, nine measles-related deaths were reported, eight in Romania and one in the United Kingdom. Four of these deaths were in unvaccinated infants <1 year of age. No cases were complicated by acute measles encephalitis.

Rubella

- Twenty-eight EU/EEA countries reported 1 307 rubella cases during the period 1 January to 31 December 2016. Twenty-five countries reported consistently for the 12-month period.
- Rubella is targeted for elimination in Europe. The rubella notification rate was lower than the elimination target (one case per million population) in 26 of the 28 countries. Seventeen of these 26 countries reported zero cases. Of the two countries with a notification rate above this indicator, the highest rate was reported by Poland (30.1 cases per million population).
- Poland reported 1 144 rubella cases, 88% of all reported cases in the 12-month period. This figure should be interpreted with caution because only 19 cases were confirmed by laboratory testing. Data were reported in an aggregated format. The highest number of cases was observed in 1–4-year-olds and 5–9-year-olds.

Progress towards WHO elimination goals

In 2015, the vaccination coverage rate for the first dose of measles-containing vaccines was at least 95% in 17 EU/EEA countries, and for the first dose of rubella-containing vaccines at least 95% in 15 EU/EEA countries. In eight countries, the vaccination coverage rate for the second dose of measles-containing vaccine was at least 95%. Five countries did not submit data concerning the second dose for 2014 or 2015.

At the [fifth meeting](#) of the Regional Verification Commission for Measles and Rubella on 24–26 October 2016 [4], of 53 countries in the WHO European Region, 24 (15 EU/EEA) were declared to have achieved the elimination goal for measles and 24 (16 EU/EEA) for rubella (based on 2015 data). In addition, 13 countries (nine EU/EEA) were deemed to have interrupted endemic transmission for less than 36 months for measles and 11 for rubella (six EU/EEA), meaning that they are on their way to achieving the elimination goal.

If the elimination goal is to be achieved, high-quality surveillance is essential, while the vaccination coverage rates in young children targeted by routine vaccination programmes will have to be increased for both measles and rubella, and immunisation gaps closed in adolescents and adults who have missed opportunities for vaccination in the past.

Measles

Epidemiology

Measles surveillance data were retrieved from The European Surveillance System (TESSy) on 26 January 2017. The analysis by ECDC covered the period from 1 January to 31 December 2016. Thirty EU/EEA countries report measles data to ECDC, and twenty-eight reported consistently during this 12-month period (Table 1). All countries reported case-based data, except Belgium, which has reported aggregated data since May 2016.

During the 12-month period, 3 767 cases of measles were reported (Figure 1, Table 1). The country reporting the most cases was Romania ($n=1\ 576$, 42% of all cases), with 417 of these cases reported in October 2016 (Table 1). This is due to an ongoing outbreak in the country. Other countries with a high number of cases were Italy (843), the United Kingdom (571) and Germany (323). The number of measles cases reported in December 2016 is shown in Figure 2 and country-specific notification rates for the entire 12-month period are presented in Figure 3.

ECDC has published a risk assessment on the risk of measles spreading and the likelihood of sustained transmission in EU/EEA countries in relation to the ongoing outbreak in Romania and the current epidemiological situation in the EU/EEA [5].

The measles notification rate was lower than the elimination target (one case per million population) in 18 of the 30 reporting countries. Eight countries reported zero cases. Twelve reporting countries had a notification rate above the elimination target, with the highest notification rate reported by Romania (79.3 cases per million population) (Table 1).

Over the 12-month period, the diagnosis of measles was confirmed in 69% (2 589) of the cases by positive laboratory results (serology, virus detection or isolation). There were large variations among countries in the proportion of laboratory-confirmed cases, which can be attributed to the significant variation in the number of cases reported by the countries, different laboratory capacities, and the fact that laboratory confirmation may not be considered necessary for all cases during an outbreak due to the higher positive predictive value of a clinical diagnosis in this context.

The highest age-specific notification rate was observed in infants under one year of age (76.1 cases per million population), followed by children aged 1–4 years (55.3 cases per million population) (Figure 4). Infants and 1–4-year-olds have consistently been the age groups with the highest annual measles notification rate since 2006 (Figure 5). The age distribution of measles cases varies from year to year, depending on where outbreaks occur across the Member States. In 2016, 42% of cases were aged <5 years, and 28% were aged ≥ 20 years. In both

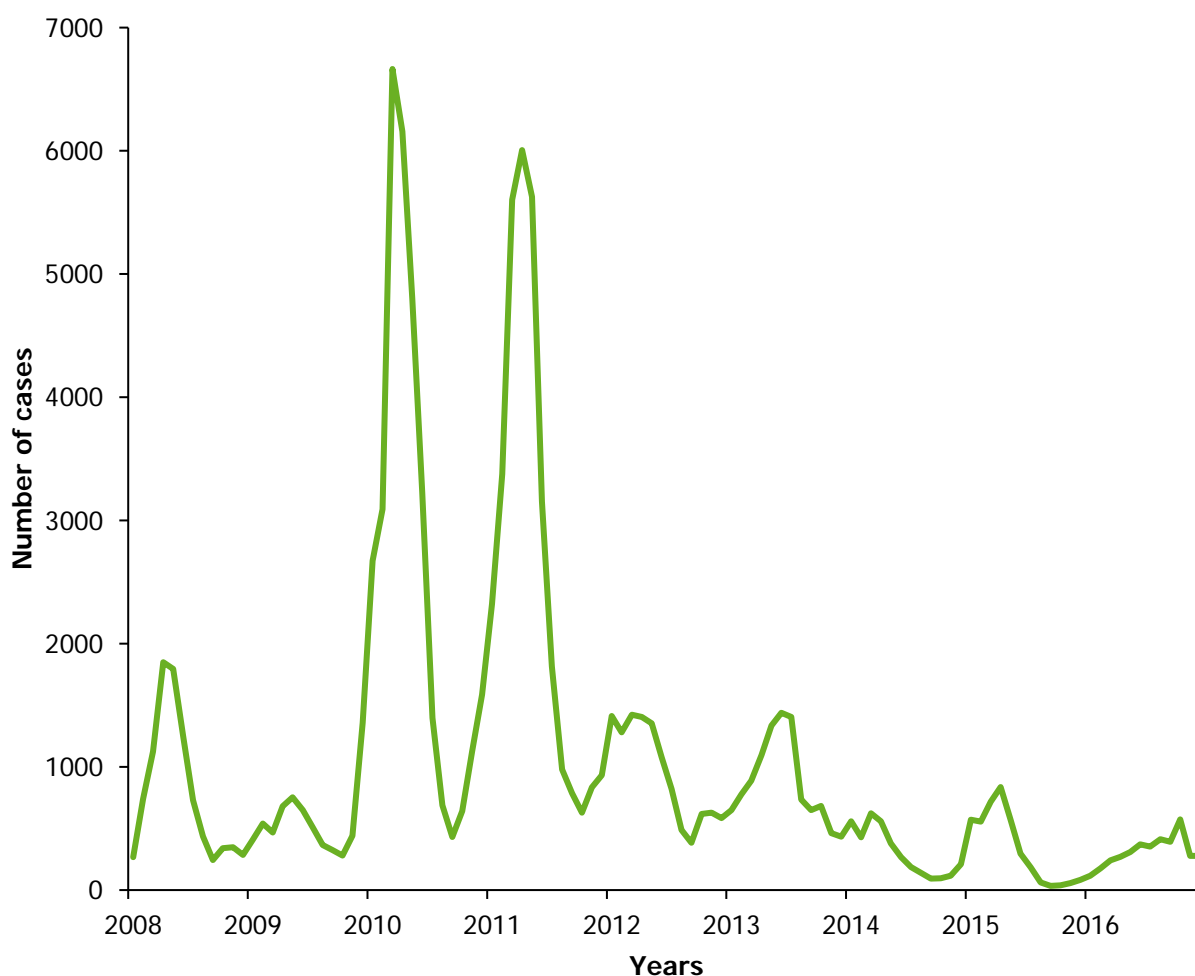
2014 and 2015, ≥ 20 -year-olds were the age group accounting for the largest proportion of measles cases (53% in 2014, 38% in 2015) (Figure 6).

Although the collective picture for EU/EEA countries in 2016 reflects the most affected age groups in Romania, the picture varies from country to country (Figure 7). More than 50% of cases in Italy, and 45% of cases in the United Kingdom were ≥ 20 years of age. On the other hand, a high notification rate and proportion of cases continue to be observed in unvaccinated 1–4-year olds in several countries across the EU/EEA. This highlights the importance of closing immunisation gaps in adolescents and adults who have missed opportunities for vaccination in the past, as well as improving immunisation coverage rates in the age groups already targeted by routine vaccination programmes.

Data on vaccination status were available for 94% (3 529/3 761) of the cases with known age. The majority of cases were unvaccinated ($n=3 083$, 87%); 8% (295) had received one dose of measles vaccine, 3% (121) had received two or more doses, and 1% (30) had received an unknown number of doses. The proportion of unvaccinated cases was high in all age groups and highest among infants under one year (98%) (Figure 8). Infants under one year are often too young to be eligible for vaccination. In the target group for the first dose of routine childhood MMR vaccination (1–4-year-old children), 84% of all cases were unvaccinated. (Figure 7). Some countries also administer the second dose in this age group, while others administer the second dose to older children. For more information on the different measles and rubella vaccine schedules in EU/EEA countries, see the ECDC [vaccine scheduler](#). Measles vaccination coverage by country for the second dose of a measles-containing vaccine is presented in Figure 2.

Over the 12-month period, nine deaths were attributed to measles, eight in Romania and one in the United Kingdom. Four of these deaths (three in Romania and one in the United Kingdom) were in unvaccinated infants < 1 year of age. No cases complicated by acute measles encephalitis were reported.

Figure 1. Distribution of measles cases by month, EU/EEA countries, 1 January 2008 – 31 December 2016



Note: From 2008–2011, 29 EU/EEA countries reported measles data to ECDC. Since 2012, when Croatia joined the European Union, 30 EU/EEA countries have been reporting measles data to ECDC.

Table 1. Number of measles cases by month and notification rate per million population by country, 1 January–31 December 2016, EU/EEA countries

Country	2016												Total cases	Cases per million	Total lab-positive cases
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec			
Austria	0	0	0	2	1	1	8	3	4	3	1	4	27	3.2	25
Belgium	4	8	19	13	17	9	1	0	2	2	2	3	80	7.1	61
Bulgaria	0	1	0	0	0	0	0	0	0	0	0	0	1	0.1	1
Croatia	0	0	0	2	0	0	1	0	1	0	0	0	4	1.0	4
Cyprus	0	0	0	0	0	0	0	0	0	0	0	NR	0	0.0	0
Czech Republic	0	0	1	0	4	0	0	0	1	0	1	0	7	0.7	7
Denmark	0	0	0	1	0	0	0	1	0	0	0	1	3	0.5	3
Estonia	1	0	0	1	0	0	0	0	0	0	0	0	2	1.5	2
Finland	1	0	0	0	0	0	0	0	0	0	0	3	4	0.7	4
France	18	14	12	3	0	7	6	4	7	2	2	4	79	1.2	50
Germany	6	4	16	28	45	72	38	27	30	11	25	21	323	4.0	270
Greece	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0
Hungary	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0
Iceland	0	0	0	0	0	0	0	1	0	0	0	NR	1	3.0	1
Ireland	0	1	0	0	19	14	3	5	1	0	1	0	44	9.5	43
Italy	77	85	74	76	84	85	45	34	55	75	84	69	843	13.9	596
Latvia	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0
Lithuania	0	0	0	10	10	2	0	0	0	0	0	0	22	7.5	22
Luxembourg	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0
Malta	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0
Netherlands	0	0	0	0	0	0	0	2	0	0	0	4	6	0.4	5
Norway	0	0	0	0	0	0	0	0	0	0	0	1	1	0.2	1
Poland	0	0	2	0	2	3	5	39	39	24	13	4	131	3.5	80
Portugal	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0
Romania	6	40	63	67	78	100	112	185	219	417	129	160	1576	79.3	814
Slovakia	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0
Slovenia	0	0	0	0	1	0	0	0	0	0	0	0	1	0.5	1
Spain	0	0	9	9	0	2	3	2	3	2	6	2	38	0.8	25
Sweden	0	0	0	1	0	0	0	2	0	0	0	0	3	0.3	3
United Kingdom	4	22	44	56	48	76	132	108	29	37	14	1	571	8.8	571
Total	117	175	240	269	309	371	354	413	391	573	278	277	3767	7.3	2589

Liechtenstein does not report. NR: Not reported

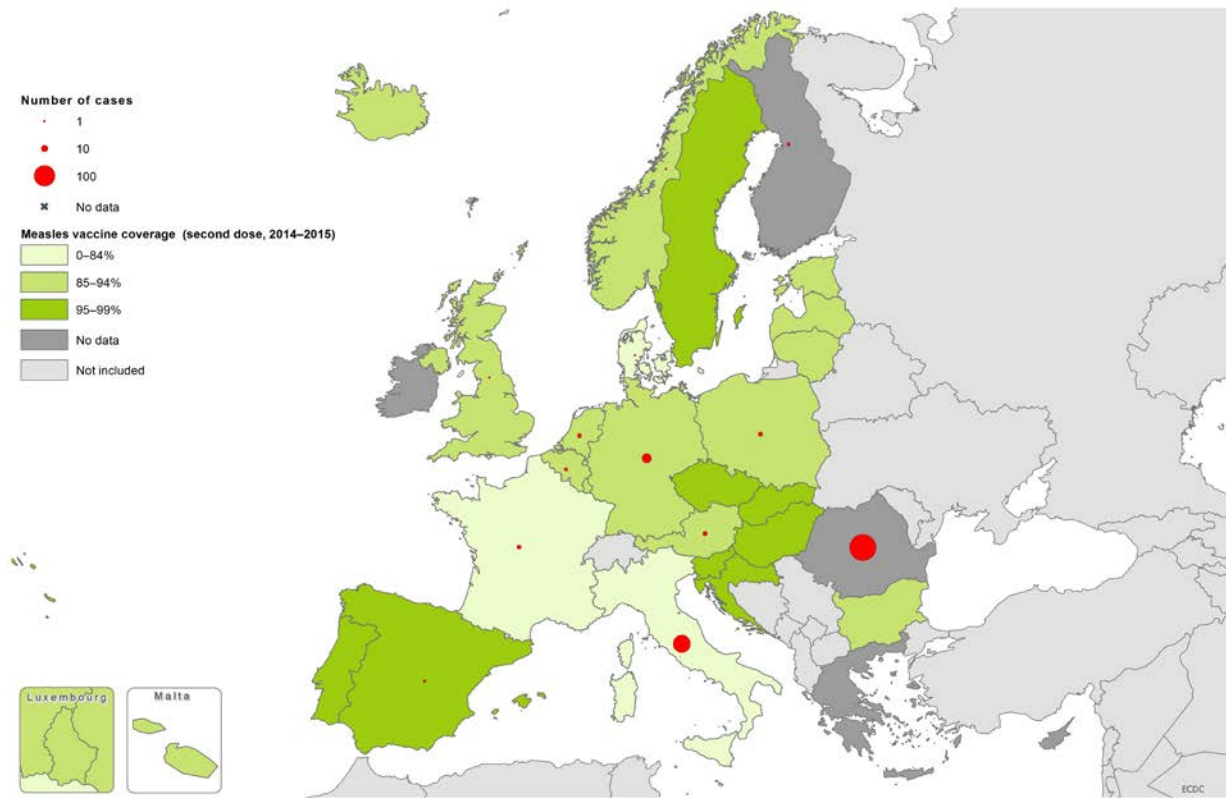
The target towards elimination is an incidence of less than one case per million population per year (including confirmed, probable and possible cases, but excluding imported cases). Achieving this target is consistent with progress towards elimination, but does not constitute elimination or confirm that it has been achieved.

In the table, countries with a notification rate of ≥ 1 per million population are highlighted in green. All cases (endemic, imported, import-related) are included in the calculation of the notification rate. Also included are all confirmed, probable, possible or unknown cases, as defined by the EU 2012 case definition.

Tables with the numbers of measles cases in previous years are available from:

http://www.ecdc.europa.eu/en/healthtopics/measles/epidemiological_data/pages/annual_epidemiological_reports.aspx

Figure 2. Distribution of measles cases by country, December 2016 (n=277), and vaccine coverage (second dose of measles-containing vaccine, 2014–2015, WHO*), EU/EEA countries



* Coverage figures (%) are official national figures reported via the annual WHO/UNICEF Joint Reporting Form. See notes at the end of this report for further explanations

Figure 3. Measles notification rate per million population by country, 1 January–31 December 2016, EU/EEA countries (n=3 767)

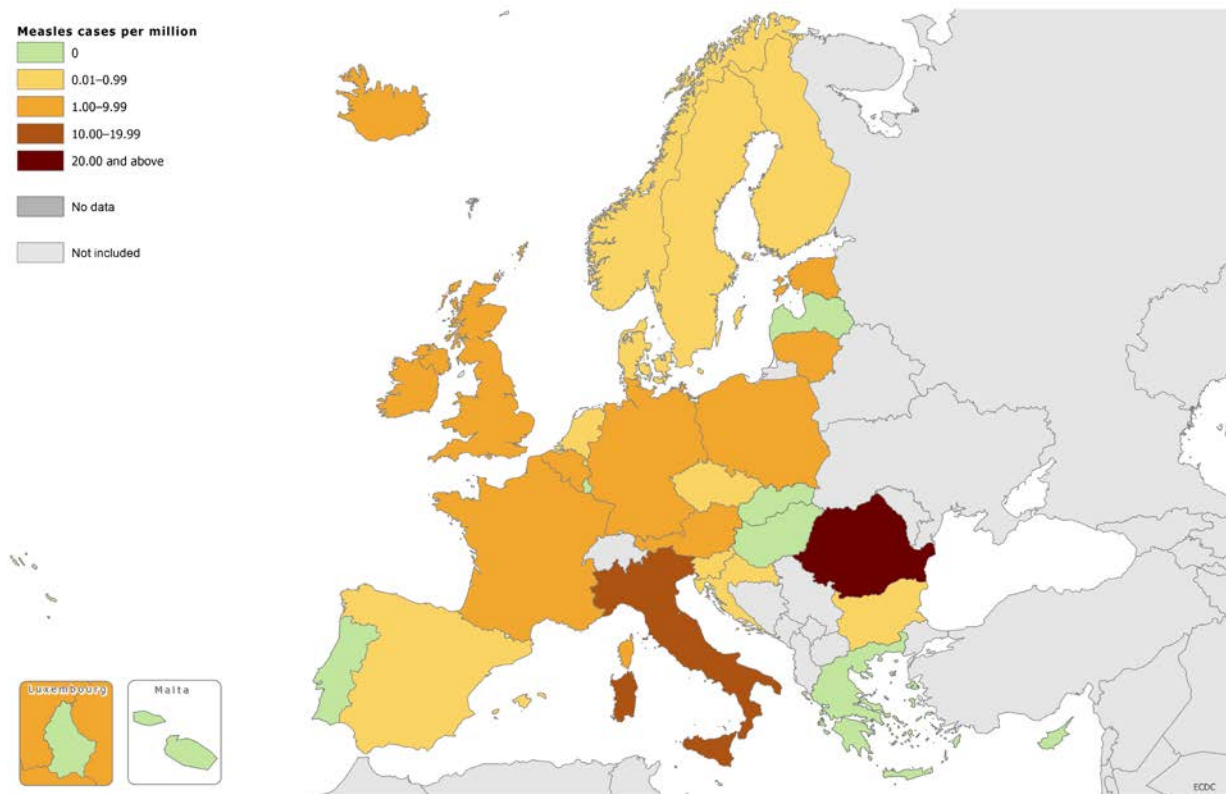


Figure 4. Measles notification rate per million population (points) and distribution (bars) by age group, 1 January–31 December 2016, EU/EEA countries (n=3 761 cases with known age)

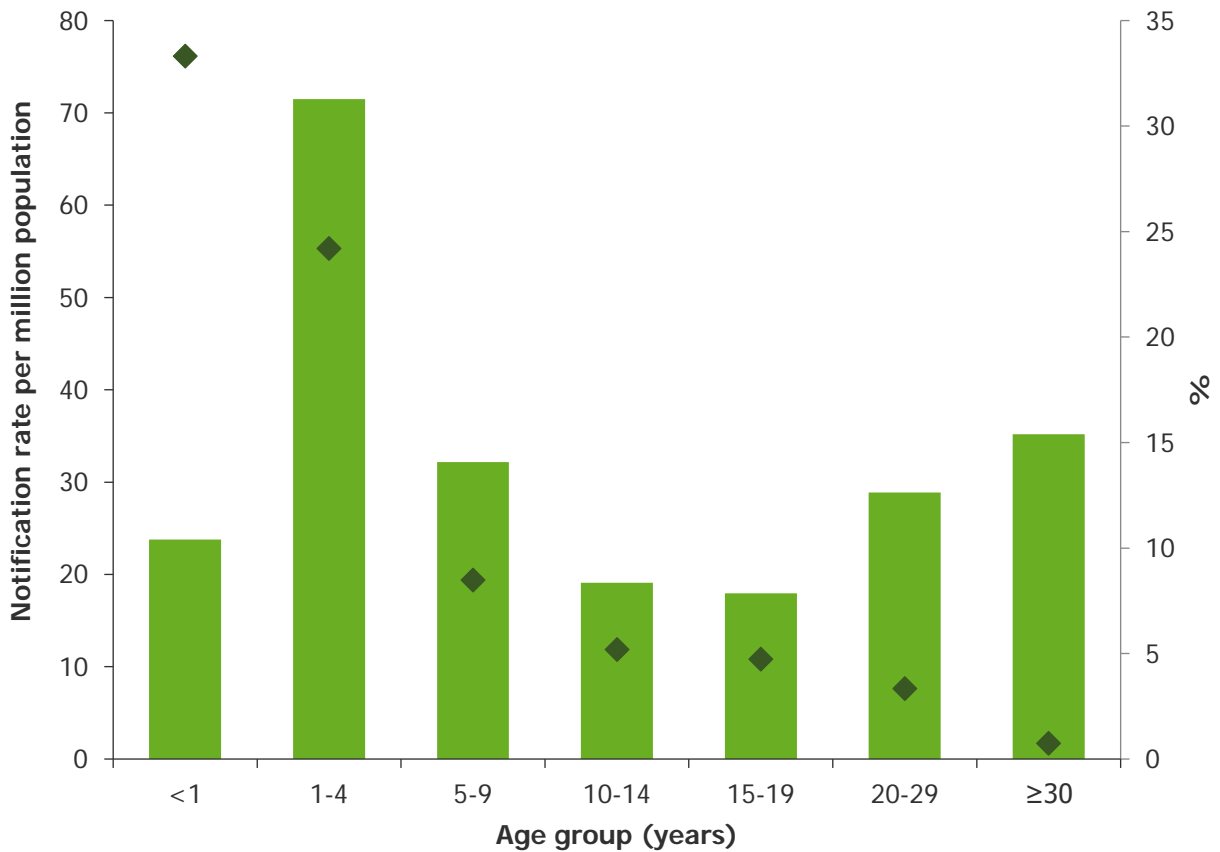
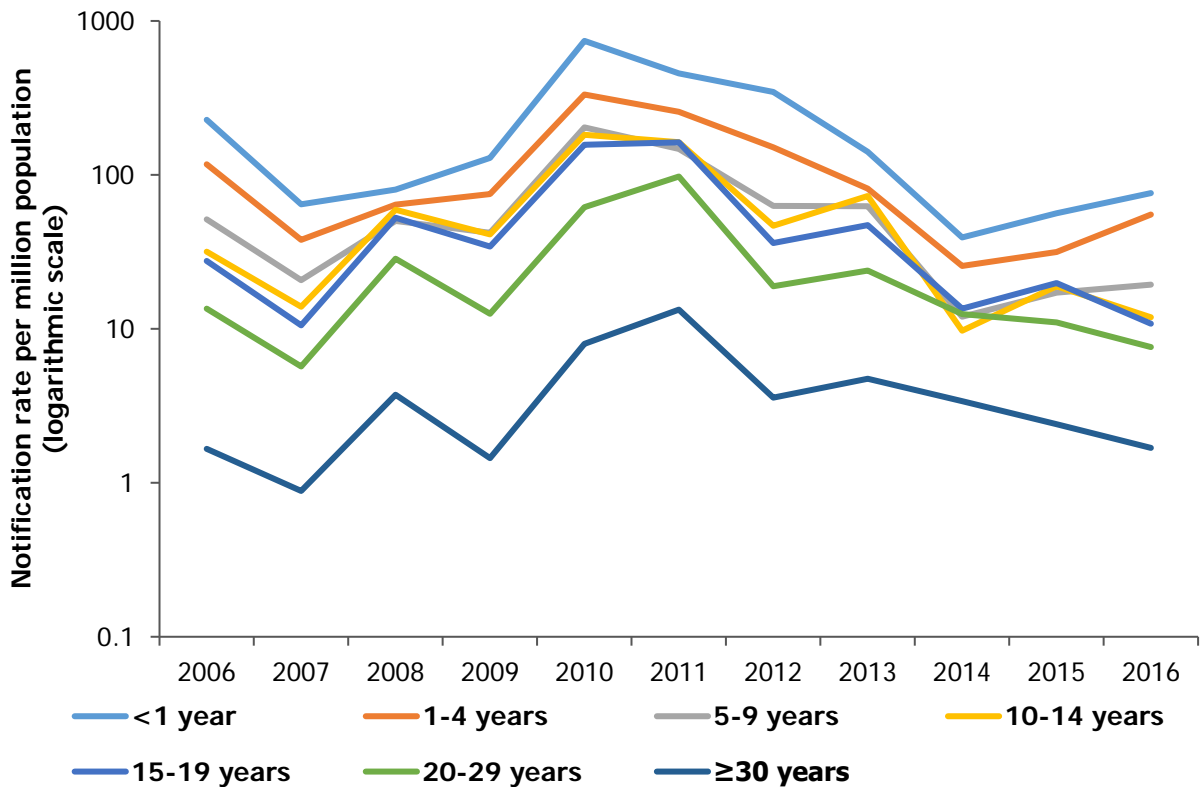
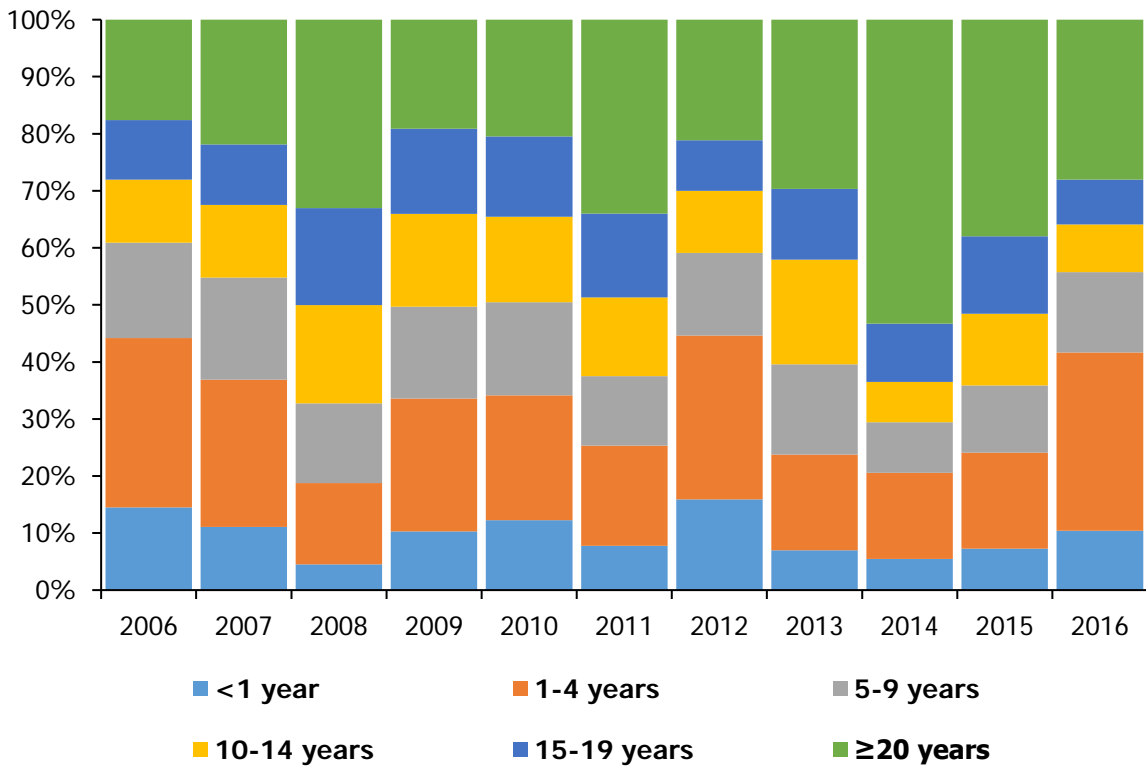


Figure 5. Measles notification rate per million population, by age group and year, 2006–2016, EU/EEA countries



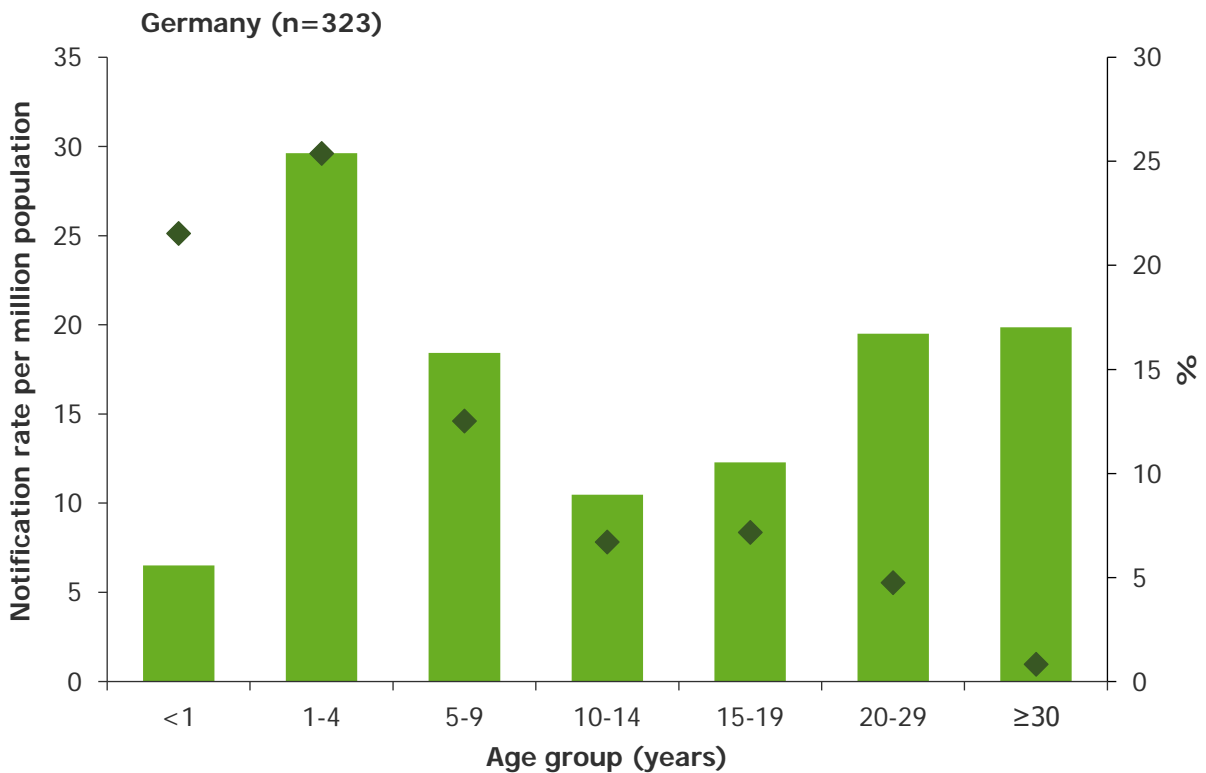
Note: From 2006–2011, 29 EU/EEA countries reported measles data to ECDC. Since 2012, when Croatia joined the European Union, 30 EU/EEA countries have been reporting measles data to ECDC.

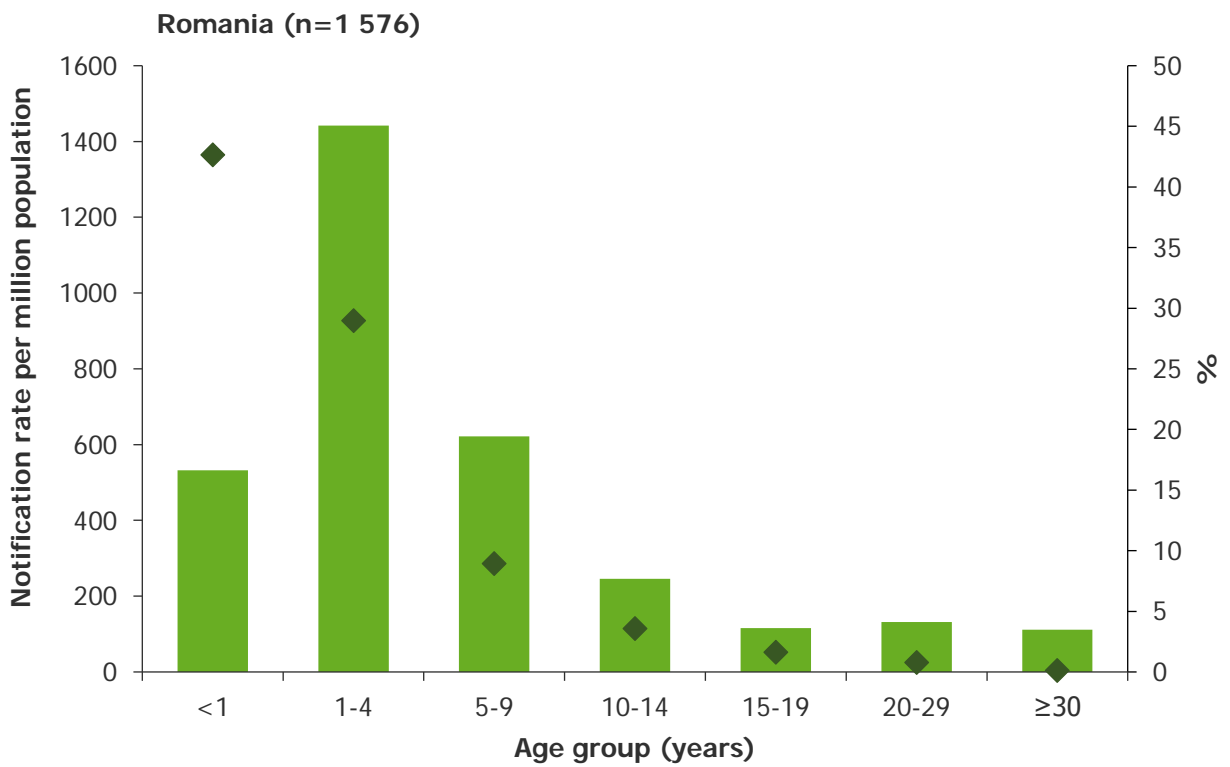
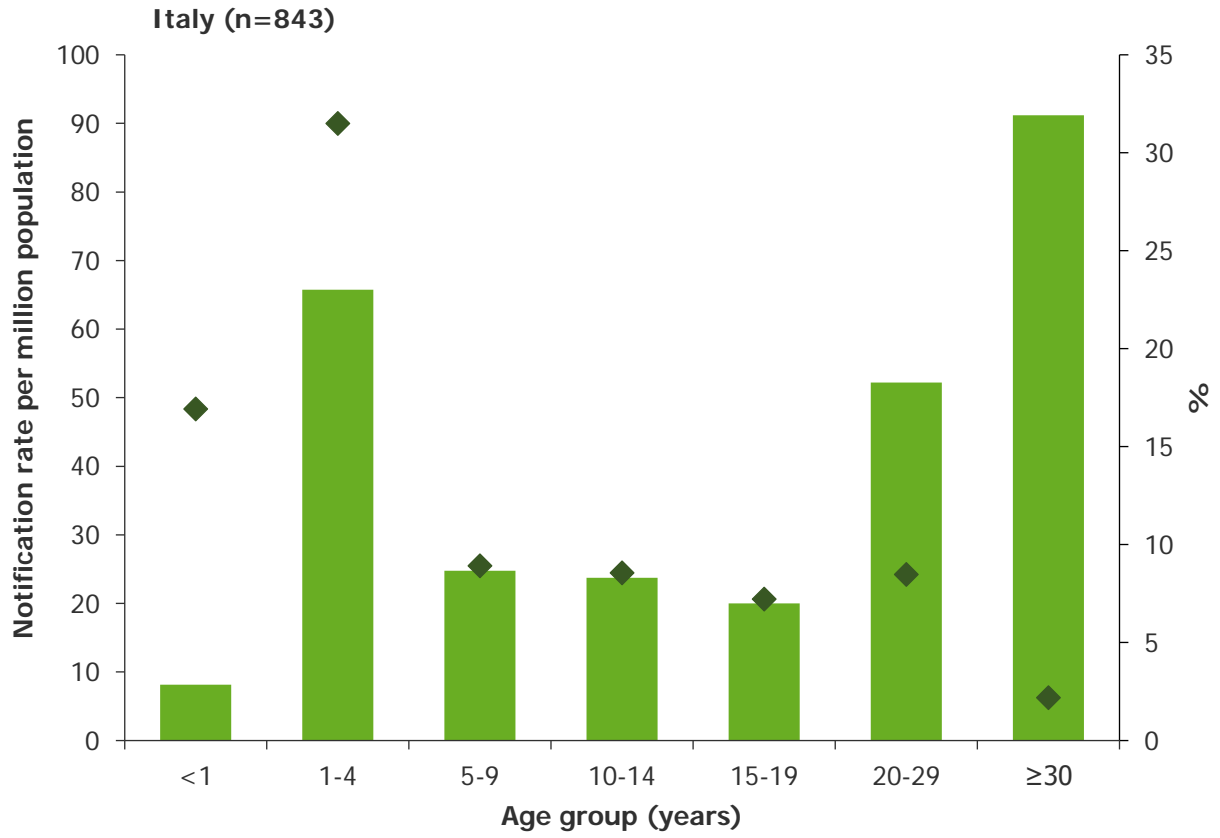
Figure 6. Age distribution among measles cases by age group and year, 2006–2016, EU/EEA countries



Note: From 2006–2011, 29 EU/EEA countries reported measles data to ECDC. Since 2012, when Croatia joined the European Union, 30 EU/EEA countries have been reporting measles data to ECDC.

Figure 7. Measles notification rate per million population (points) and distribution (bars) by age group in Germany, Italy, Romania and the United Kingdom, 1 January–31 December 2016





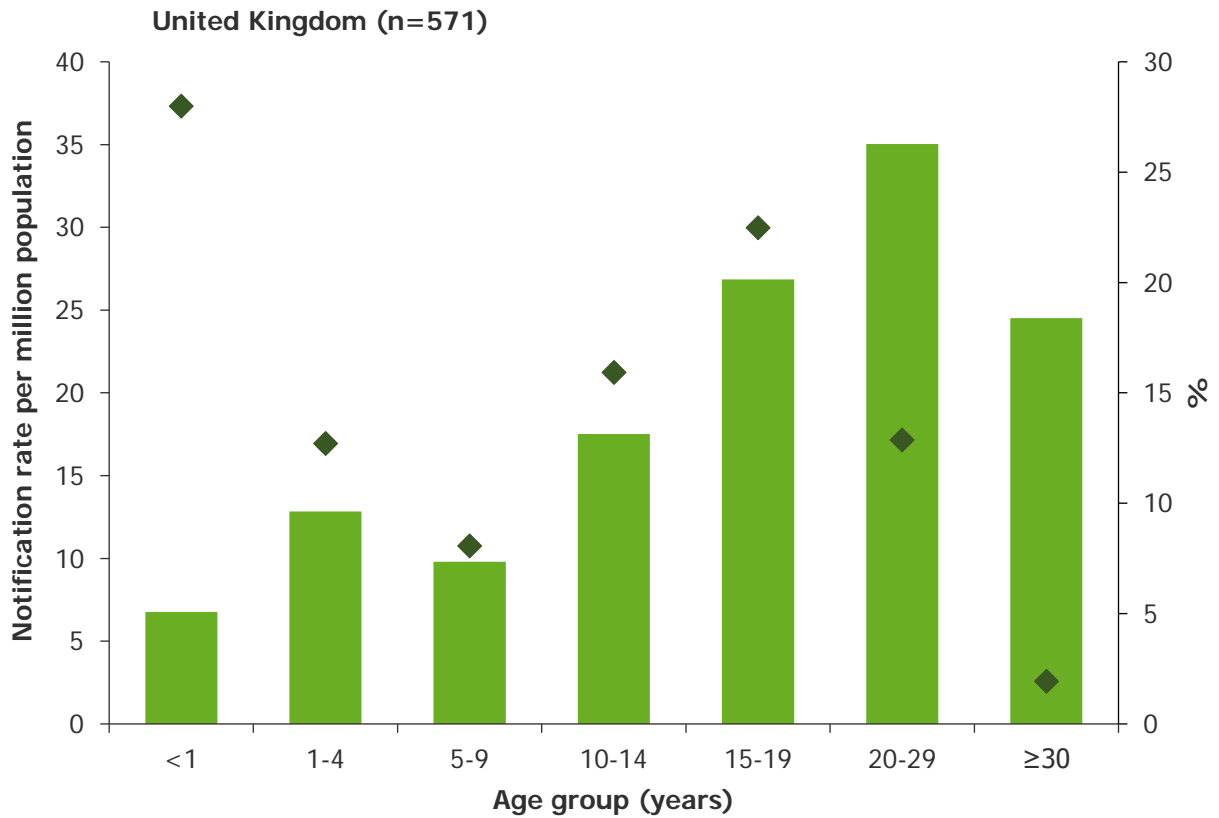
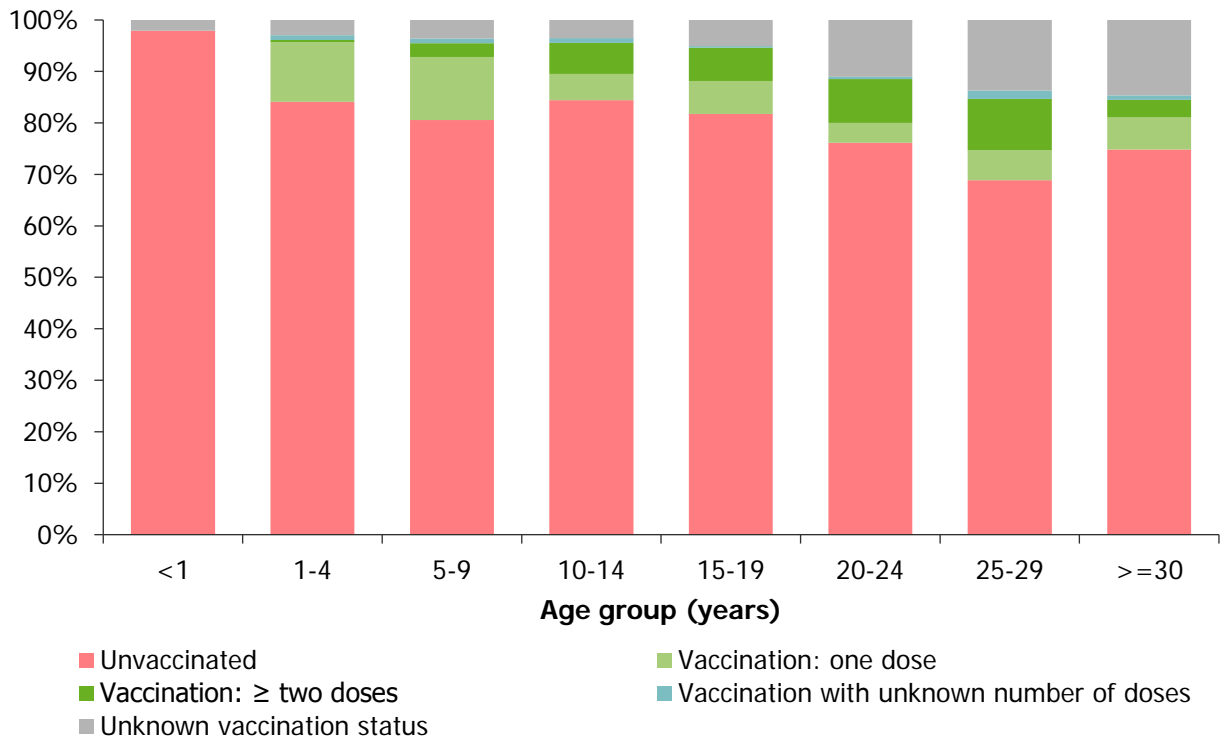


Figure 8. Percentage distribution of vaccination status among measles cases by age group, 1 January–31 December 2016, EU/EEA countries (n=3 761 cases with known age)



Rubella

Epidemiology

Rubella surveillance data were retrieved from The European Surveillance System (TESSy) on 26 January 2017. The analysis covered the 12-month period from 1 January to 31 December 2016.

Two EU countries – Belgium and France – do not operate rubella surveillance systems with national coverage and therefore do not report to the EU/EEA enhanced rubella surveillance. In Belgium, a network of sentinel laboratories (58% of all laboratories) reports cases positive for IgM on a voluntary basis to the Institute of Public Health. In France, a surveillance system captures rubella infections diagnosed in pregnant women or newborn infants [6].

Of the 28 contributing countries, twenty-five reported data for the entire 12-month period. All countries reported case-based data, except Poland which reported aggregated data.

During the period 1 January to 31 December 2016, 1 307 cases of rubella were reported (Table 2). The diagnosis of rubella was confirmed in 5% (68) of the cases by positive laboratory results (serology, virus detection or isolation). The number of cases reported in January 2017 and the notification rates for the entire 12-month period are shown in Figures 9 and 10.

The rubella notification rate was lower than the elimination target (one case per million population) in 26 of the 28 countries. Seventeen of these 26 countries reported zero cases. Of the two countries with a notification rate above the indicator, the highest notification rate was reported by Poland (30.1 cases per million) (Table 2).

The highest age-specific notification rates were observed in infants under one year of age (43.7 cases per million population) and in cases aged between one and four years (24.9 cases per million population) (Figure 11).

Poland accounted for 88% (n=1 144) of all reported rubella cases in the 12-month period. However, these data should be interpreted with caution because only 19 of the reported cases had a positive laboratory test. The highest number of cases was observed among 1–4-year-olds (n=395) and 5–9-year-olds (n=296).

In Poland, a total of 378 cases (33%) reported over the 12-month period were unvaccinated, 532 (47%) cases were vaccinated with one dose, 81 (7%) cases had received two or more doses, and 153 (13%) cases had an unknown vaccination status.

Table 2. Number of rubella cases by month and notification rate (cases per million) by country, 1 January–31 December 2016, EU/EEA countries

Country	2016												Total cases	Cases per million	Total lab-positive cases
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec			
Austria	0	1	1	0	0	0	0	1	0	0	0	0	3	0.4	1
Bulgaria	0	0	0	0	0	0	1	0	0	0	1	0	2	0.3	0
Croatia	0	0	0	0	2	0	0	0	0	0	0	0	2	0.5	2
Cyprus	0	0	0	0	0	0	0	0	0	0	0	NR	0	0.0	0
Czech Republic	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0
Denmark*	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0
Estonia	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0
Finland	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0
Germany	3	7	5	16	11	15	14	3	5	3	7	5	94	1.2	21
Greece	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0
Hungary	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0
Iceland	0	0	0	0	0	0	0	0	0	0	0	NR	0	0.0	0
Ireland	0	0	1	0	0	0	1	1	0	0	0	1	4	0.9	0
Italy	1	4	3	2	7	7	2	1	1	2	4	1	35	0.6	11
Latvia	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0
Lithuania	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0
Luxembourg	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0
Malta	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0
Netherlands	0	0	0	0	0	0	0	0	0	0	0	NR	0	0.0	0
Norway	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0
Poland	142	138	111	151	110	116	54	53	48	81	64	76	1144	30.1	19
Portugal	2	1	1	0	1	2	0	0	0	0	1	0	8	0.8	0
Romania	0	0	1	1	2	0	1	1	2	0	1	2	11	0.6	10
Slovakia	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0
Slovenia	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0
Spain	0	0	1	1	0	0	0	0	0	0	0	0	2	0.0	2
Sweden	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0
United Kingdom	0	0	1	0	0	0	0	0	0	0	1	0	2	0.0	2
Total	148	151	125	171	133	140	73	60	56	86	79	85	1307	**	68

Liechtenstein, Belgium and France do not report. NR: Not reported

The target towards elimination is an incidence of less than one case per million population per year (including confirmed, probable and possible cases, but excluding imported cases). Achieving this target is consistent with progress towards elimination, but does not constitute elimination or confirm that it has been achieved.

In the table, countries with a notification rate of ≥ 1 per million population are highlighted in green. However, all cases (endemic, imported, import-related) are included for the calculation of the notification rate. All confirmed, probable, possible or unknown cases are also included, as defined by the EU 2012 case definition.

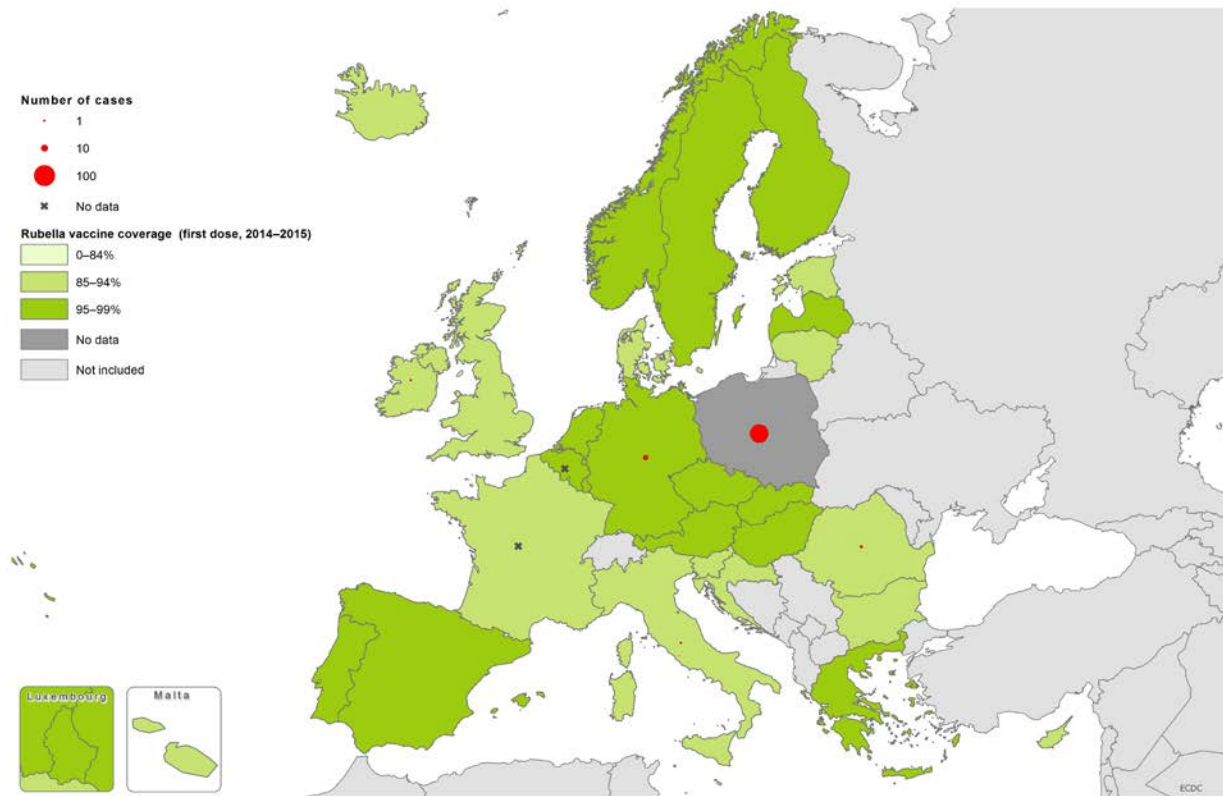
* The national surveillance system for rubella in Denmark currently only captures rubella infections during pregnancy; therefore the true incidence of rubella in the Danish population is underestimated.

** Due to the high proportion of cases reported by Poland, an overall notification rate for Europe is not presented.

Tables with the number of rubella cases in previous years are available from:

http://www.ecdc.europa.eu/en/healthtopics/rubella/epidemiological-data/pages/epidemiological_data.aspx

Figure 9. Number of rubella cases by country, January 2017 (n=85), and rubella vaccine coverage (first dose, rubella-containing vaccine, 2014–2015, WHO*), EU/EEA countries



* Coverage figures (%) are official national figures reported via the annual WHO/UNICEF Joint Reporting Form. See notes at the end of this report for further explanations.

Figure 10. Rubella notification rate per million population by country, 1 January – 31 December 2016, EU/EEA countries (n=1 307)

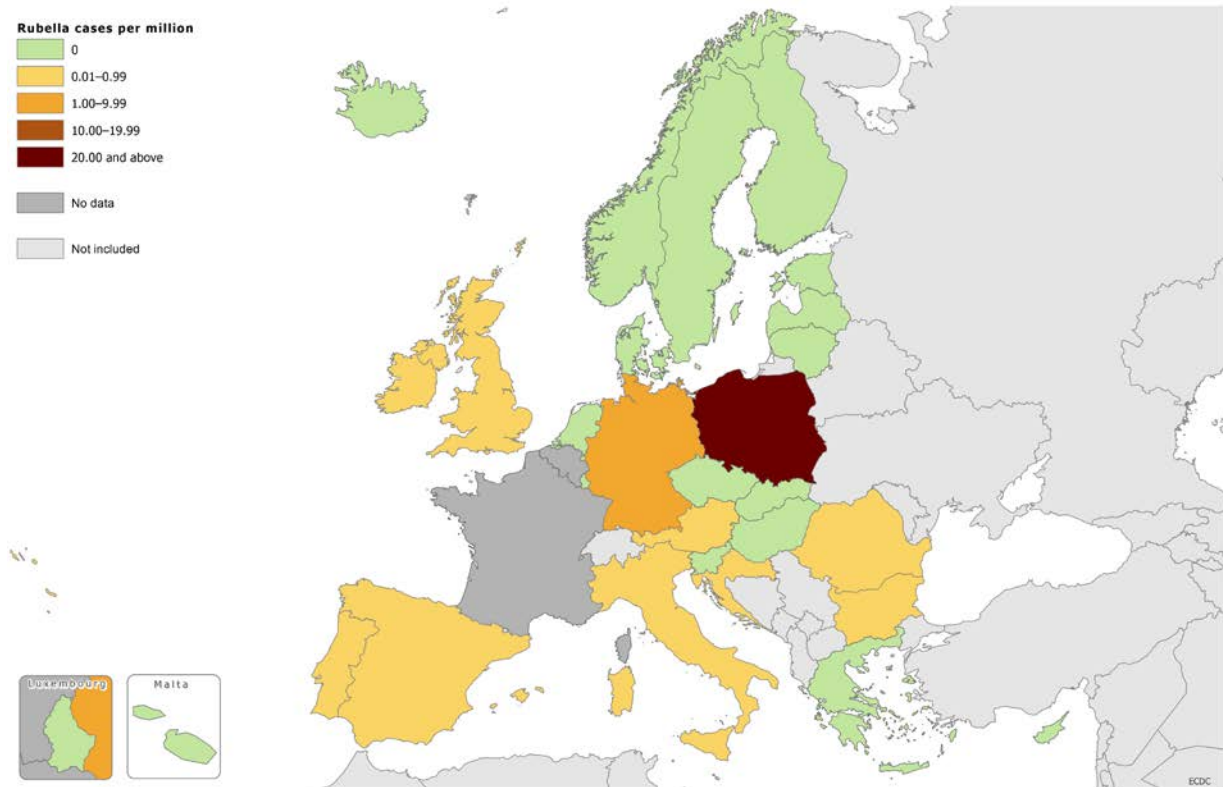
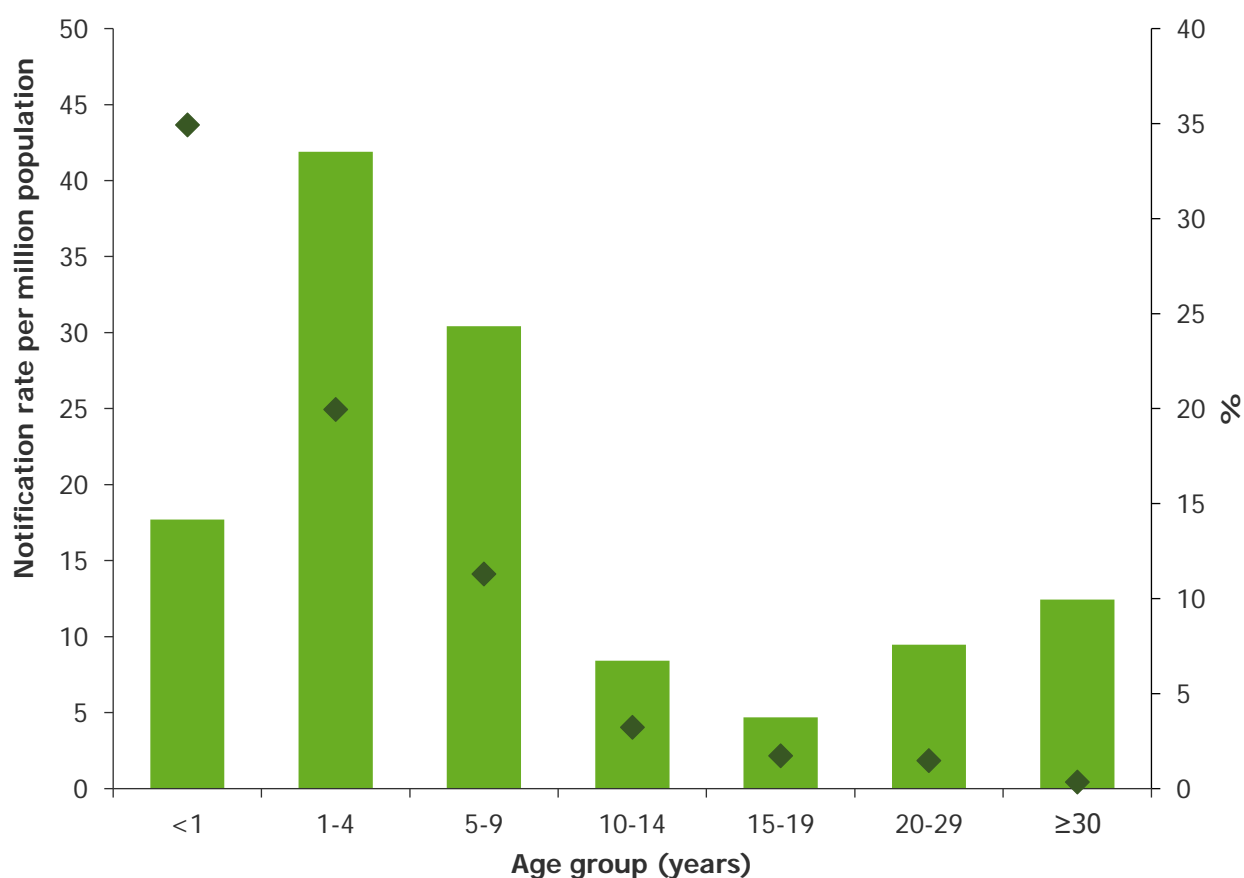


Figure 11. Rubella notification rate per million population (points) and distribution (bars) by age group, 1 January–31 December 2016, EU/EEA countries (n=1 307 cases with known age)



Progress towards measles and rubella elimination in EU/EEA Member States

In May 2012, 194 countries at the World Health Assembly adopted the Global Vaccine Action Plan (GVAP), which established their joint commitment to achieving measles and rubella elimination in at least five WHO Regions by the end of 2020.

Elimination is defined as the absence of endemic cases for a period of at least 12 months in a defined geographical area with a well-performing surveillance system. Regional elimination can be declared after at least 36 months' absence of endemic measles or rubella in all Member States [7]. The status of measles and rubella elimination in the WHO European Region is assessed annually by the Regional Verification Commission. The classification of countries with regard to disease elimination, interrupted or ongoing endemic transmission depends on a series of components, including epidemiology of disease, surveillance performance, and evidence of population immunity. If evidence is inconclusive, the country is classified as 'endemic'.

Although progress has been made towards elimination, this goal has not yet been achieved. At the fifth meeting of the Regional Verification Commission for Measles and Rubella on 24–26 October 2016 [4], annual status reports for 2015 data were assessed. Of 53 Member States in the WHO European Region, 24 (15 EU/EEA) were declared to have interrupted endemic measles transmission for ≥ 36 months, and thus achieved the elimination goal. This is three more countries than the previous year. Twenty-four countries were verified as having eliminated rubella (16 EU/EEA), four more than the previous year. In addition, 13 countries for measles (nine EU/EEA) and 11 for rubella (six EU/EEA) were deemed to have interrupted endemic transmission for less than 36 months, meaning they are on their way to achieving the elimination goal (Table 3).

The elimination target is an incidence of less than one endemic measles or rubella case per million population in a 12-month period. In the past 12 months, the overall notification rate for measles in EU/EEA countries was 7.3 cases per million population. Over the past 12 months, eighteen EU/EEA countries notified less than one case per million population (Table 1). Twenty-six countries reported less than one case of rubella per million population over the past 12 months (Table 2). These figures include imported and import-related cases, and therefore the number of countries having achieved the target may be underestimated for each disease.

To interrupt the circulation of the virus, a vaccination coverage (second dose) of at least 95% must be achieved and maintained for both diseases and in all countries. Data from WHO for 2015 [8] show that the vaccination coverage rate for the first dose of measles-containing vaccines was at least 95% in 17 EU/EEA countries, and for the first dose of rubella-containing vaccines was at least 95% in 15 EU/EEA countries. Poland (96% coverage for the first dose of measles-containing vaccine) did not report coverage data for the first dose of rubella-containing vaccine. The United Kingdom reported 95% coverage for the first dose of measles-containing vaccine, and 93% for the first dose of rubella-containing vaccine. In eight countries, the vaccination coverage rate for the second dose of measles-containing vaccine was at least 95%. Five countries did not submit data concerning the second dose for 2014 or 2015. WHO does not collect coverage data on the second dose of rubella-containing vaccines.

If the elimination goal is to be achieved, the vaccination coverage rates in young children targeted by routine vaccination programmes will have to be increased to at least 95%, and immunisation gaps closed for adolescents and adults who have missed vaccination opportunities in the past. This is relevant at both the national and subnational level because pockets of susceptible individuals still exist throughout the EU/EEA, even in countries with high overall vaccine coverage.

In order to achieve and accurately document progress towards the elimination goal, high-quality surveillance is essential. Surveillance systems must be highly sensitive and geographically representative to ensure the timely and sufficient investigation and management of suspected cases. Data reporting must be timely and complete, particularly with regard to the origin of infection. Adequate laboratory investigation is essential because data on viral genotype are needed to track transmission chains. Current surveillance and control measures in several EU Member States will need to improve and expand if the elimination target is to be achieved.

WHO's 'Surveillance guidelines for measles, rubella and congenital rubella syndrome in the WHO European Region' are available from [6]: http://www.euro.who.int/_data/assets/pdf_file/0018/79020/e93035-2013.pdf.

Table 3. Elimination status of EU/EEA Member States, based on 2015 data review, taken from Regional Verification Commission meeting report

Elimination status	Measles	Rubella
EU/EEA Member States judged to have eliminated the disease (≥ 36 months without endemic transmission).	Bulgaria, the Czech Republic, Cyprus, Estonia, Finland, Hungary, Latvia, Luxembourg, Malta, the Netherlands, Norway, Portugal, Slovakia, Slovenia, Sweden (15)	the Czech Republic, Cyprus, Estonia, Finland, Hungary, Ireland, Latvia, Luxembourg, Malta, the Netherlands, Norway, Portugal, Slovakia, Slovenia, Spain, the United Kingdom (16)
EU/EEA Member States judged to have interrupted endemic transmission for between 24 and 35 months.	Croatia, Denmark, Greece, Iceland, Lithuania, Spain, the United Kingdom (7)	Croatia, Greece, Iceland, Lithuania, Sweden (5)
EU/EEA Member States judged to have interrupted endemic transmission for between 12 and 23 months.	Ireland (1)	Austria (1)
EU/EEA Member States having provided evidence of interrupted endemic transmission for less than 12 months - evidence of interruption for a full 12 months or longer is expected in the annual status update for 2016	Austria (1)	(0)
EU/EEA MS judged to have endemic transmission .	Belgium, France, Germany, Italy, Poland, Romania (6)	Belgium, Bulgaria, Denmark, France, Germany, Italy, Poland, Romania (8)

Source: Meeting report of the fifth Meeting of the European Regional Verification Commission for Measles and Rubella Elimination [4]

Useful links

More information about measles and rubella is available on the ECDC website:

Measles health topic page, ECDC: <http://ecdc.europa.eu/en/healthtopics/measles/Pages/index.aspx>

Rubella health topic page, ECDC: <http://ecdc.europa.eu/EN/HEALTHTOPICS/RUBELLA/Pages/index.aspx>

Measles and rubella atlases to monitor progress toward elimination, ECDC: <http://ecdc.europa.eu/en/data-tools/atlas/Pages/atlas.aspx>

Vaccination schedules in EU/EEA countries, ECDC: <http://vaccine-schedule.ecdc.europa.eu/Pages/Scheduler.aspx>

'Let's talk about protection' ECDC: <http://www.ecdc.europa.eu/en/healthtopics/immunisation/comms-aid/Pages/protection.aspx>

Information about vaccines and immunisation from the website of the World Health Organization's Regional Office for Europe: <http://www.euro.who.int/en/health-topics/communicable-diseases/measles-and-rubella>

WHO CISID database: <http://data.euro.who.int/cisid/>

Immunisation health topic page, ECDC: <http://ecdc.europa.eu/en/healthtopics/immunisation/pages/index.aspx>

Notes

The European Surveillance System (TESSy) collects a 'date used for statistics', which is a date chosen by the country for reporting purposes. This date may indicate onset of disease, date of diagnosis, date of notification or date of laboratory confirmation, depending on reporting practices in the respective countries.

When reporting data on measles, rubella and other vaccine-preventable diseases to TESSy, countries may update previously reported data. This means that the date of retrieval can influence the data presented in this report, as later retrievals of data relating to the same period may result in slightly different numbers. For this reason, the date of data retrieval is indicated for each issue.

The vaccine coverage figures displayed in the maps of this report were retrieved from the WHO Global Database available from http://apps.who.int/immunization_monitoring/globalsummary/timeseries/tscoveragerubella1.html and http://apps.who.int/immunization_monitoring/globalsummary/timeseries/tscoveragemcv2.html.

Measles: Vaccine coverage for the second dose of measles-containing vaccine is estimated annually. If the 2015 country estimates were unavailable, estimates from 2014 were used. Some countries only report the coverage of the first dose of measles-containing vaccine. For more information, please check the above link to the WHO Global Database.

Rubella: Vaccine coverage for the first dose of rubella-containing vaccine is estimated annually. If the 2015 country estimates were unavailable, estimates from 2014 were used.

Notification rates were calculated using the most recent population estimates available from Eurostat (2016).

References

1. European Centre for Disease Prevention and Control. Surveillance atlas of infectious diseases – Measles. Stockholm: ECDC; 2015. [Accessed 30 Jan 2017]. Available from: <http://atlas.ecdc.europa.eu/public/index.aspx?Dataset=27&HealthTopic=35&GeoResolution=2&TimeResolution=Month&FixDataset=1&FixHealthTopic=0?Instance=MeaslesMonthlyAtlas>
2. European Centre for Disease Prevention and Control. Surveillance atlas of infectious diseases – Rubella. Stockholm: ECDC; 2015. [Accessed 30 Jan 2017]. Available from: <http://atlas.ecdc.europa.eu/public/index.aspx?Dataset=27&HealthTopic=45&GeoResolution=2&TimeResolution=Month&FixDataset=1&FixHealthTopic=0&Instance=RubellaMonthlyAtlas>
3. European Centre for Disease Prevention and Control. Measles maps. Stockholm: ECDC; 2017. [Accessed 30 Jan 2017]. Available from: http://ecdc.europa.eu/en/healthtopics/measles/epidemiological_data/Pages/measles_maps.aspx
<http://ecdc.europa.eu/en/healthtopics/rubella/epidemiological-data/Pages/rubella-maps.aspx>
4. WHO Regional Office for Europe. Fifth meeting of the European Regional Verification Commission for Measles and Rubella Elimination. Copenhagen: WHO Europe; 2017. Available from: <http://www.euro.who.int/en/health-topics/communicable-diseases/measles-and-rubella/publications/2017/5th-meeting-of-the-european-regional-verification-commission-for-measles-and-rubella-elimination-2017>
5. European Centre for Disease Prevention and Control. Ongoing outbreak of measles in Romania, risk of spread and epidemiological situation in EU/EEA countries. Stockholm: ECDC; 2017. Available from: <http://ecdc.europa.eu/en/publications/Publications/27-02-2017-RRA-Measles-Romania,%20European%20Union%20countries.pdf>
6. European Centre for Disease Prevention and Control. Survey on rubella, rubella in pregnancy and congenital rubella surveillance systems in EU/EEA countries. Stockholm: ECDC; 2013. Available from: <http://ecdc.europa.eu/en/publications/Publications/survey-rubella-pregnancy-congenital-surveillance-systems-may-2013.pdf>
7. WHO Regional Office for Europe. Surveillance guidelines for measles, rubella and congenital rubella syndrome in the WHO European Region. Copenhagen: WHO Europe; 2012. Available from: http://www.euro.who.int/_data/assets/pdf_file/0018/79020/e93035-2013.pdf
8. World Health Organization. Measles-containing vaccine 2nd dose. Geneva: WHO; 2016. [Accessed 30 Jan 2017]. Available from: http://apps.who.int/immunization_monitoring/globalsummary/timeseries/tscoveragemcv2.html