

SURVEILLANCE REPORT

Measles and rubella monitoring

January 2016

Reporting on surveillance data from 1 January 2015 – 31 December 2015
and epidemic intelligence data until 31 January 2016

Main developments

Starting with this issue, ECDC will publish the measles and rubella monitoring report twice a year. The first issue of each year will report on the previous calendar year, while the summer issue will focus on the most recent measles and rubella season and present the data collected during the past 12 months.

Visualisations of measles and rubella data are available online through the [measles](#) and [rubella](#) pages of the ECDC Surveillance Atlas (updated monthly). In addition, ECDC produces monthly high-resolution maps, which are available from:

http://ecdc.europa.eu/en/healthtopics/measles/epidemiological_data/Pages/measles_maps.aspx.

Measles

- Between 1 January 2015 and 31 December 2015, 3 969 cases of measles were reported by a total of 30 EU/EEA countries. All thirty countries reported consistently throughout this 12-month period.
- Germany accounted for 62.1% 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 13 of the 30 reporting countries. Eight of these 13 countries reported zero cases. Sixteen reporting countries had a notification rate above this indicator, with Croatia reporting the highest rate (51.6 cases per million).
- The diagnosis of measles was confirmed by positive laboratory results (serology, virus detection or isolation) in 65.3% of all cases.
- Of all cases, 88.9% had a known vaccination status, and of these, 84.8% were reported as unvaccinated. In the target group for routine childhood MMR vaccination (1–4-year-old children), 77.0% of all cases were unvaccinated.
- During the period 1 January 2015–31 December 2015, one measles-related death was reported in a 19-month-old child in Germany. Six cases were complicated by acute measles encephalitis.
- No new measles outbreaks have been detected in EU/EEA Member States by epidemic intelligence since the previous report, dated 31 October 2015.
- In the rest of the world, measles outbreaks have occurred in Pakistan, Malaysia, Nepal, Egypt, Cameroon, Nigeria, South Sudan and Guinea.

Rubella

- Twenty-eight EU/EEA countries reported a total of 2 193 rubella cases during the period 1 January 2015 to 31 December 2015. All 28 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 25 of the 28 countries. Sixteen of these 25 countries reported zero cases. Of the three countries with a notification rate above this indicator, the highest rate was reported by Poland (53.4 cases per million).
- Poland reported 2 029 rubella cases, which accounted for 92.5% of all reported cases in the 12-month period. Data were reported in an aggregated format. Twenty-two cases were confirmed through laboratory testing. The highest number of cases was observed in 1–4-year-olds and 5–9-year-olds.
- No outbreaks of rubella have been detected by epidemic intelligence since the previous report, dated 31 October 2015.
- According to a press release by Public Health England, rubella susceptibility screening in pregnancy will end in England on 1 April 2016 because the World Health Organization considers rubella in the UK eliminated.

Progress towards WHO elimination goals

- Measles: In 2014, 16 EU/EEA countries were above the measles vaccination coverage target of 95% for the first dose. Six countries were above the coverage target for the second dose. A coverage of 95% for both the first and the second dose is necessary to achieve the level of population immunity required to interrupt endemic transmission. Fourteen countries have coverage rates of under 95% for the first dose, and 20 countries are below 95% for the second dose.
- Rubella: In 2014, 16 EU/EEA countries reported a first-dose rubella vaccination coverage rate of $\geq 95\%$, the level of population immunity considered to be required to interrupt endemic transmission. Fourteen countries had a coverage rate of $< 95\%$.

Results of the third meeting of the WHO Regional Verification Commission for Measles and Rubella, November 2014 (based on 2013 data):

Measles

- Interrupted endemic transmission: 14 EU/EEA countries
- Endemic transmission: 8 EU/EEA countries
- Inconclusive evidence: 7 EU/EEA countries

Rubella

- Interrupted endemic transmission: 16 EU/EEA countries
- Endemic transmission: 8 EU/EEA countries
- Inconclusive evidence: 5 EU/EEA countries

Measles

Enhanced surveillance data

Measles surveillance data were retrieved from The European Surveillance System (TESSy) on 26 January 2016. The analysis by ECDC covered the period from 1 January 2015 to 31 December 2015. Thirty EU/EEA countries consistently reported case-based data for the 12-month period and were included in the analysis (Table 1).

During the 12-month period, 3 969 cases of measles were reported (Figure 1, Table 1). The country which reported the most cases was Germany (62.1% of all cases) (Table 1). The number of cases for each country observed in December 2015 and the country-specific notification rates for the entire 12-month period are shown in Figures 2 and 3.

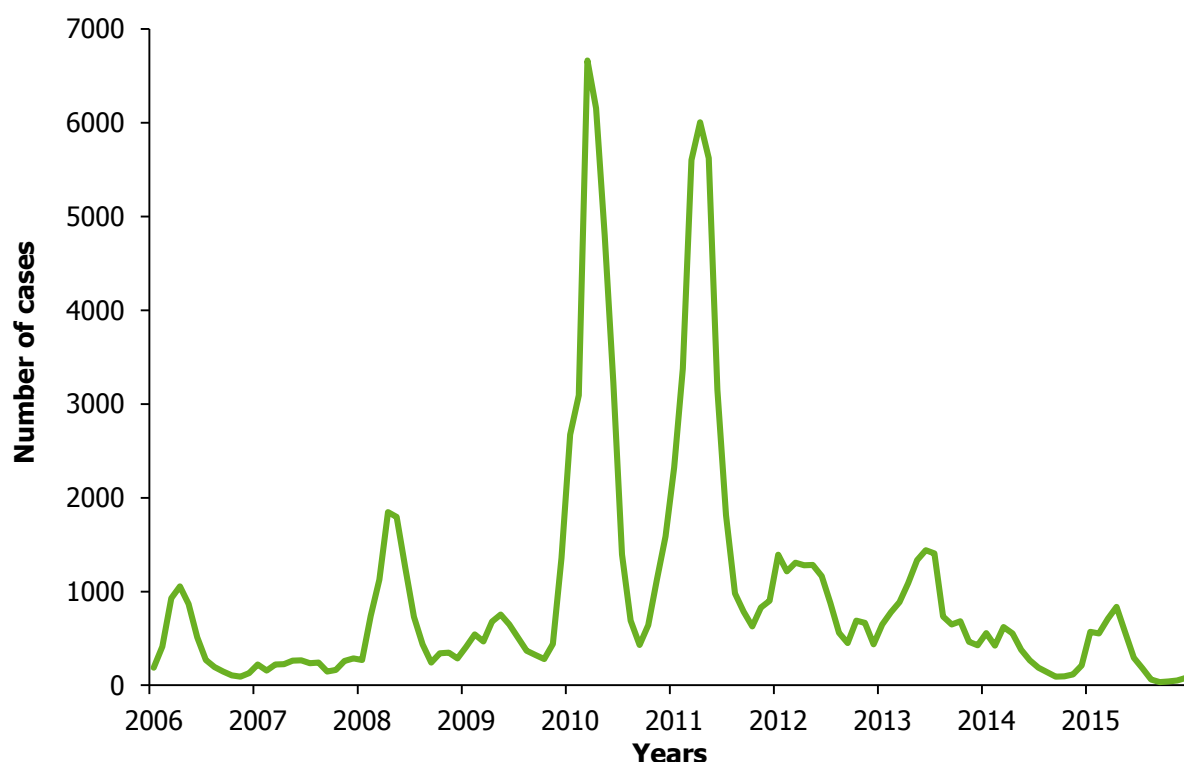
The measles notification rate was lower than the elimination target (one case per million population) in 14 of the 30 reporting countries. Seven countries reported zero cases. Sixteen reporting countries had a notification rate above the elimination target. The highest one was reported by Croatia (51.6 cases per million) (Table 1).

The highest notification rate was in infants under one year of age (55.6 cases per million population), followed by children aged 1–4 years (31.1 cases per million population) (Figure 4). The diagnosis of measles was confirmed by positive laboratory results (serology, virus detection or isolation) in 65.3% of all cases, although there were large variations between countries in the proportion of laboratory-confirmed cases. This 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.

Vaccination status was known for 88.9% (3 524/3 964) of the cases with known age. Of these 3 524 cases, 84.8% (2 988) were unvaccinated, 10.1% (356) had received one dose of measles vaccine, 3.6% (127) had received two or more doses, and 1.5% (53) 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 of age (93.6%), children 5–9 years of age (84%) and children 10–14 years of age (84.0%). Children below the age of one year are often too young to be eligible for vaccination. Among children between one and four years of age – the age group targeted by routine childhood vaccination programmes – 77.0% of all cases were unvaccinated (Figure 5). Measles vaccination coverage with the second dose of a measles-containing vaccine for each country is presented in Figure 2.

Over the 12-month period, one death was attributed to measles, and six cases were complicated by acute measles encephalitis.

Figure 1. Distribution of measles cases by month, EU/EEA countries, 1 January 2006–31 December 2015



Note: During the period 1 January 2006–31 December 2015, 30 EU/EEA countries consistently reported data on measles every month. All 30 countries are included in the figure; Croatia is included from 2012 onwards.

Table 1. Number of measles cases by month and notification rate (cases per million) by country, January–December 2015, EU/EEA countries

Country	2015												Total cases	Cases per million	Total lab-positive cases
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec			
Austria	37	27	51	63	59	47	10	2	1	0	1	2	300	35.3	223
Belgium	5	7	6	3	16	3	0	0	0	3	2	2	47	4.2	36
Bulgaria	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0
Croatia	52	38	55	37	29	8	0	0	0	0	0	0	219	51.6	139
Cyprus	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0
Czech Republic	1	3	1	0	3	1	0	0	0	0	0	0	9	0.9	9
Denmark	0	2	1	1	5	0	0	0	0	0	0	0	9	1.6	9
Estonia	0	0	0	1	0	0	0	0	0	0	0	3	4	3.0	4
Finland	0	0	1	0	0	0	0	0	0	0	0	0	1	0.2	1
France	6	3	13	93	149	51	17	10	1	6	4	11	364	5.5	157
Germany	432	420	537	577	238	118	90	19	12	14	5	4	2466	30.5	1588
Greece	0	0	0	0	0	0	0	0	1	0	0	0	1	0.1	1
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	0	0	0.0	0
Ireland	0	0	1	0	0	1	2	0	0	0	0	3	7	1.5	5
Italy	10	16	14	29	30	14	17	16	15	15	31	40	247	4.1	150
Latvia	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0
Lithuania	0	0	4	4	0	15	26	1	0	0	0	0	50	17.0	50
Luxembourg	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0

Country	2015												Total cases	Cases per million	Total lab-positive cases
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec			
Malta	0	0	0	0	1	0	0	0	0	0	0	0	1	2.4	1
Netherlands	0	0	1	2	0	2	2	0	0	0	0	0	7	0.4	6
Norway	0	0	2	3	4	0	1	4	0	0	0	0	14	2.7	14
Poland	1	7	10	10	4	6	1	2	0	0	0	3	44	1.2	29
Portugal	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0
Romania	1	2	0	0	0	0	0	0	0	0	0	0	3	0.2	1
Slovakia	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0
Slovenia	6	8	2	2	0	0	0	0	0	0	0	0	18	8.7	18
Spain	9	8	7	4	5	7	3	1	1	0	0	0	45	1.0	38
Sweden	3	2	1	1	6	6	3	0	0	0	0	0	22	2.3	21
United Kingdom	6	11	3	7	14	13	7	5	3	2	9	11	91	1.4	91
Total	569	554	710	837	563	292	179	60	34	40	52	79	3969	7.7	2591

Liechtenstein does not report.

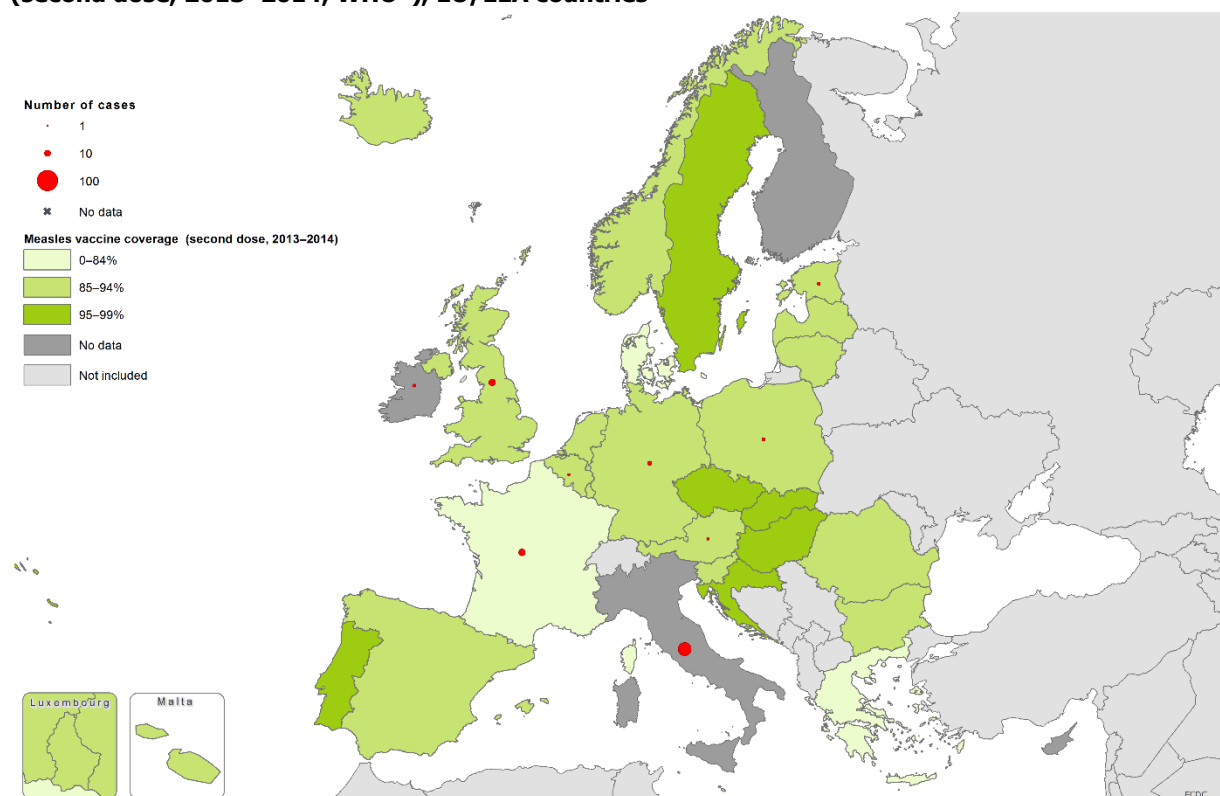
The target towards elimination is an incidence of less than one case per million population per year (including confirmed, probable and possible cases but excluding imported cases). Achieving this target is consistent with progress towards elimination but does not constitute elimination or confirm that 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. 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 2015 (n=79), and vaccine coverage (second dose, 2013–2014, 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 (cases per million) by country, 1 January–31 December 2015, EU/EEA countries (n=3 969)

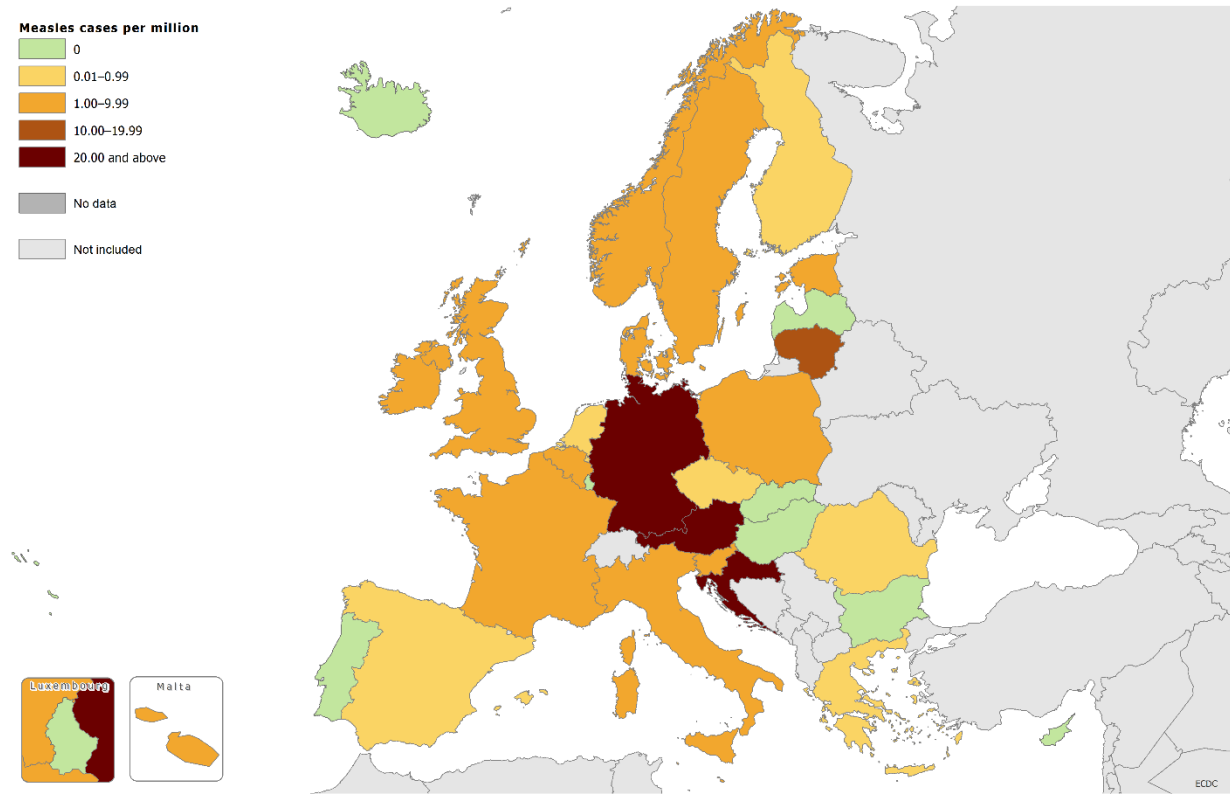


Figure 4. Measles notification rate (cases per million) by age group, 1 January–31 December 2015, EU/EEA countries (n=3 964 cases with known age)

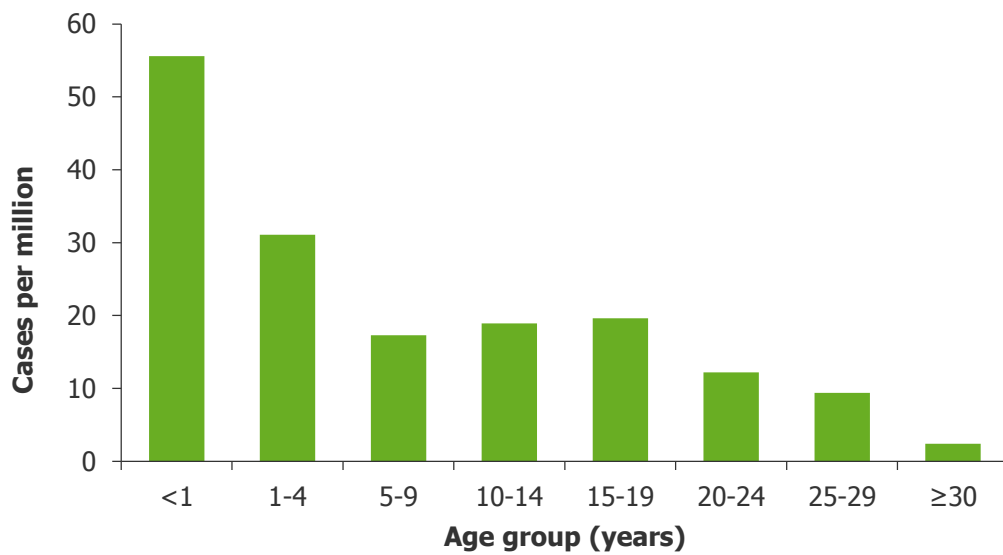
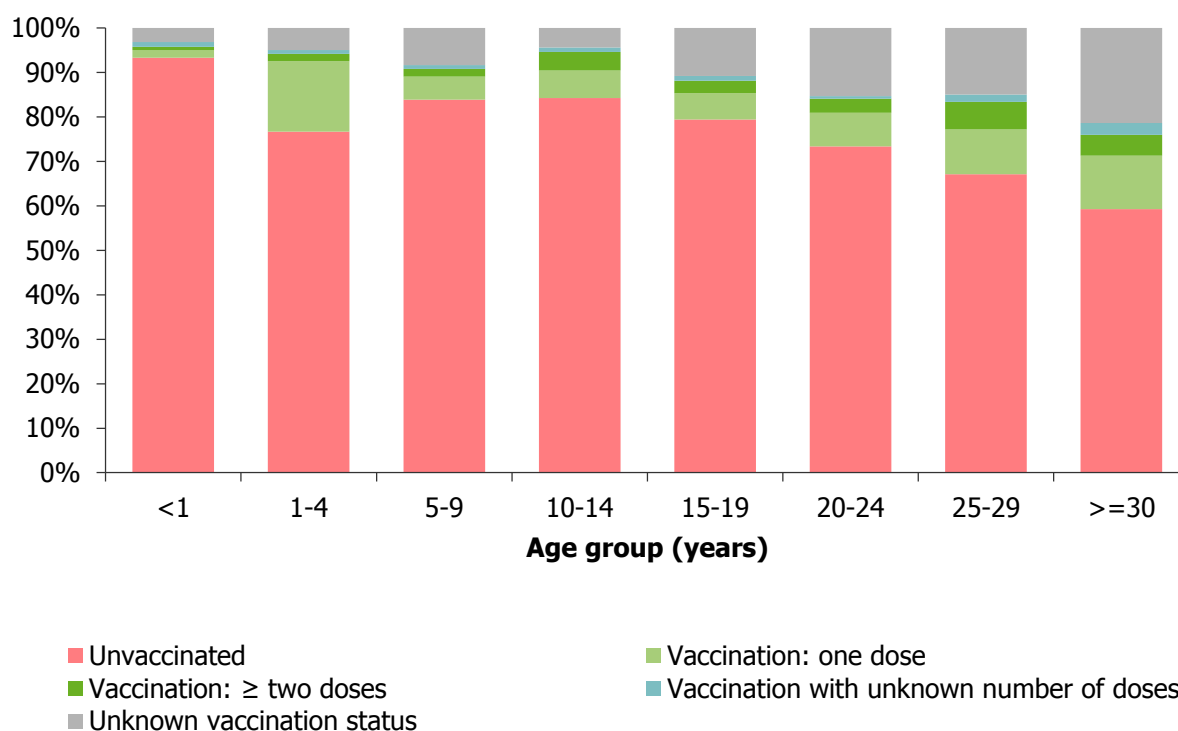


Figure 5. Percentage distribution of vaccination status among measles cases by age group, 1 January 2015–31 December 2015, EU/EEA countries (n=3 964 cases with known age)



Epidemic intelligence: Updates since the last report*

EU Member States

No new outbreaks detected since the last bulletin.

Africa and Asia

South Sudan

Since the beginning of 2015 and as of 8 November 2015, 1 280 suspected cases were reported by the media. Of these, 460 cases were investigated countrywide and 40 (9%) were laboratory-confirmed (IgM). Measles case-based surveillance, investigation, and routine vaccination are ongoing.

Nigeria

Measles outbreaks were reported in November 2015 across northern states, with Katsina reporting 2781 cases and 203 deaths and Kebbi reporting 329 cases and 3 deaths. In Abuja, Federal Capital Territory, an outbreak affected a camp for internally displaced persons, and 10 children are reported to have died as of 20 November 2015. In Niger state, 109 cases of measles including five deaths, were recorded in the first ten months of 2015. According to media reports, five children died in a measles outbreak affecting Oyo state in January 2016; the total number of cases is unknown. Immunisation campaigns are ongoing.

Cameroon

A measles epidemic has been increasing across Cameroon, with 858 cases recorded by mid-November 2015. The epidemic has gained momentum in the northern areas of the country, reaching remote and hard-to-reach communities which are currently under Boko Haram control. Most of the cases (587) were recorded in the Mokolo health district in the far north, close to the Chadian and Nigerian borders, raising the risk of this measles epidemic spreading to two more countries.

Guinea

An ongoing measles outbreak in the prefecture of Labe was reported by the media; the total number of cases is unknown.

* http://ecdc.europa.eu/en/publications/Publications/2015_issue_5_%20Measles%20rubella%20monitoring_final.pdf

Egypt

Around 5 000 children were infected with measles in the first ten months of 2015. An immunisation campaign to vaccinate 24 million children (9 months to 10 years of age) against measles and rubella started on 31 October 2015 and lasted until 21 Nov 2015.

Malaysia

A threefold rise in measles was reported in Malaysia in 2015. A total of 37 separate outbreaks with more than 602 cases, including two deaths, was reported.

Pakistan

An outbreak was reported in Baluchistan, with three deaths and an unknown number of cases (as of 19 November 2015). A vaccination team was sent to the area.

Nepal

Media reported a suspected measles outbreak on 24 January 2016 in Kapilvastu district, which borders India. More than a hundred cases, including four deaths, were reported. Investigations are ongoing.

Publications

Notes from the field: subacute sclerosing panencephalitis death – Oregon, 2015

http://www.cdc.gov/mmwr/volumes/65/wr/mm6501a3.htm?s_cid=mm6501a3_e

A 14-year-old boy died in Oregon, USA, due to subacute sclerosing panencephalitis (SSPE). The patient had been vaccinated against measles in the Philippines at 8 months of age but contracted measles at one year of age while still in the Philippines. He was well until 2012, when his neurodegenerative symptoms began. After he was diagnosed with SSPE, he remained in home hospice care until his death in 2015.

Analysis of SSPE among persons who had measles during the 1989–1991 US measles resurgence indicated an incidence of 4–11 SSPE cases per 100 000 measles cases, approximately 10 times higher than earlier estimates.

This case underscores the importance of maintaining high population immunity through routine administration of two doses of measles-containing vaccine to all eligible children.

Subacute sclerosing panencephalitis in pregnancy

<http://www.sciencedirect.com/science/article/pii/S1473309915005241>

SSPE was diagnosed post mortem in a previously healthy 29-year-old pregnant woman who had returned from a trip to rural India shortly before the onset of symptoms. She was admitted to hospital at 27 weeks' gestation, with a history of cognitive decline and difficulty completing simple tasks. She had no clinical signs of infection. The working diagnosis was autoimmune encephalitis, although extensive investigations did not lead to a final classifying diagnosis. The patient became comatose and developed hypertension, and an emergency caesarean section was done at 31 weeks to deliver the child, who seemed healthy. The patient died about 6 weeks after the onset of symptoms. The patient was found to have had SSPE at autopsy.

Progress toward regional measles elimination – worldwide, 2000–2014

http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6444a4.htm?s_cid=mm6444a4_w

In 2012, the World Health Assembly endorsed the Global Vaccine Action Plan, with the objective to eliminate measles in four World Health Organization (WHO) Regions by 2015. WHO member states in all six WHO regions have adopted measles elimination goals.

This CDC report describes progress toward global control and regional measles elimination during 2000–2014. During this period, annual reported measles incidence declined 73% worldwide, from 146 to 40 cases per million population. Annual estimated measles deaths declined 79%, from 546 800 to 114 900. However, progress toward the 2015 milestones and elimination goals has slowed markedly since 2010.

Since the last CDC [report](#), the American Region's regional verification committee determined that the American Region cannot be declared measles-free, because Brazil has had sustained transmission of a single measles virus strain for over one year. The Western Pacific Region's regional verification committee verified the absence of endemic measles in two member states and one area, bringing the total to seven in the Western Pacific Region. The European Region's regional verification committee verified measles elimination in 22 member states.

Rubella

Enhanced surveillance data

Rubella surveillance data were retrieved from The European Surveillance System (TESSy) on 26 January 2016. The analysis covered the 12-month period from 1 January 2015 to 31 December 2015.

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. All 28 contributing countries reported data for the entire 12-month period. Of these, 27 reported case-based data, while one country (Poland) reported aggregated data.

During the period 1 January 2015–31 December 2015, 2 193 cases of rubella were reported (Table 2). Laboratory confirmation (by serology, virus detection or isolation) was available for 1.3% percent (n=73) of the cases. The number of cases reported by country in December 2015 and the notification rates for the entire 12-month period are shown in Figures 6 and 7.

The rubella notification rate was lower than the elimination target (one case per million population) in 25 of the 28 countries. Sixteen of these 25 countries reported zero cases. Of the three countries with a notification rate above the indicator, the highest notification rate was reported by Poland (53.4 cases per million) (Table 2).

The highest age-specific notification rates were observed in infants under one year of age (73.0 cases per million population) and in cases aged between one and four years (49.0 cases per million population) (Figure 8).

Poland accounted for 92.5% (n= 2 029) of all reported rubella cases in the 12-month period. The highest number of cases was observed among 1–4-year-olds (n=671) and 5–9-year-olds (n=598).

In Poland, a total of 628 cases (31.0%) reported over the 12-month period were unvaccinated, 974 (48.0%) cases were vaccinated with one dose, 156 (7.7%) cases had received two or more doses, and 271 (13.4%) cases had an unknown vaccination status. However, these figures should be interpreted with caution because only 22 of the cases reported had a positive laboratory test.

Table 2. Number of rubella cases by month and notification rate (cases per million) by country, 1 January 2015–31 December 2015, EU/EEA countries

Country	2015	2015	2015	2015	2015	2015	2015	2015	2015	2015	2015	2015	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	1	0	0	0	0	0	0	0	0	1	0.1	1
Bulgaria	0	1	0	0	2	0	0	2	0	0	1	0	6	0.8	0
Croatia	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0
Cyprus	0	0	0	0	0	0	0	0	0	0	0	0	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	1	4	0	5	0.9	5
Germany	11	6	8	15	9	6	13	4	4	3	6	5	90	1.1	20
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	0	0	0.0	0
Ireland	0	0	0	0	1	0	1	4	0	0	0	0	6	1.3	0
Italy	2	1	11	4	4	6	4	2	2	1	0	1	38	0.6	17
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	1	0	0	1	0.1	1
Norway	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0
Poland	216	199	256	231	183	165	142	114	92	149	140	142	2029	53.4	22
Portugal	0	0	1	0	0	1	1	1	1	0	3	0	8	0.8	1
Romania	0	2	0	0	0	0	0	0	0	0	0	0	2	0.1	0
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	0	0	0	1	0	0	1	0	0	0	2	0.0	1

Country	2015	2015	2015	2015	2015	2015	2015	2015	2015	2015	2015	2015	Total cases	Cases per million	Total lab-positive cases
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec			
Sweden	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0
United Kingdom	0	1	3	1	0	0	0	0	0	0	0	0	5	0.1	5
Total	229	210	279	252	199	179	161	127	100	155	154	148	2193	**	73

Liechtenstein, Belgium and France do not report.

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. Also included are all confirmed, probable, possible or unknown cases, as defined by the EU 2012 case definition.

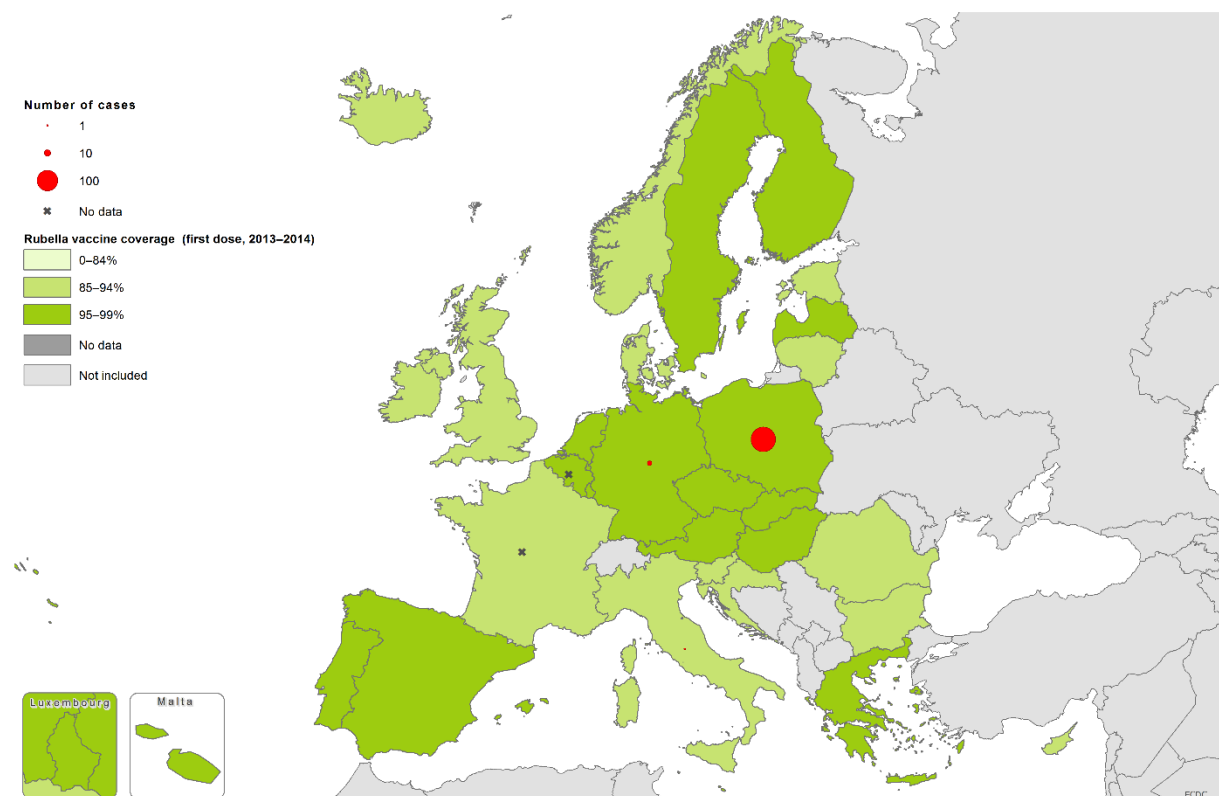
* The national surveillance system for rubella in Denmark currently only captures rubella infections during pregnancy; therefore the true incidence of rubella in the Danish population will be underestimated.

** 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 6. Number of rubella cases by country, December 2015 (n=148), and rubella vaccine coverage (first dose, 2013–2014, 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 7. Rubella notification rate (cases per million) by country, 1 January–31 December 2015, EU/EEA countries (n=2 193)

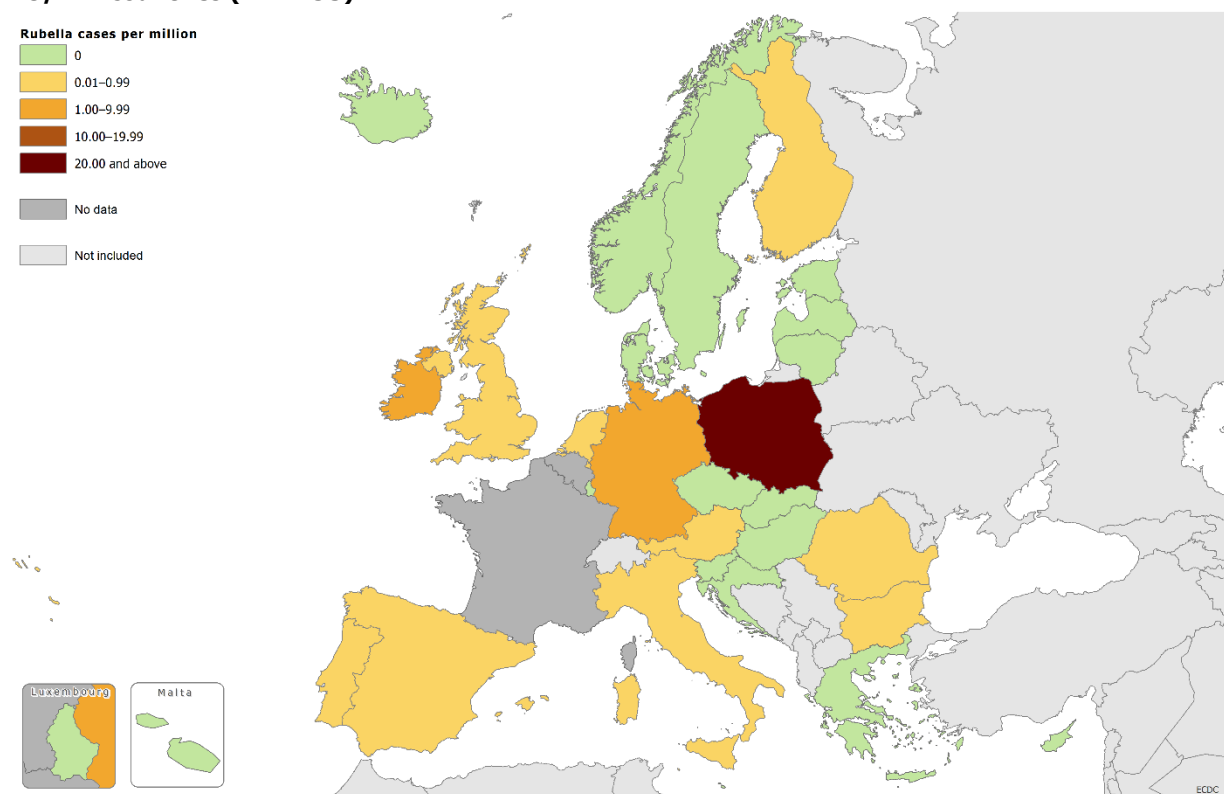
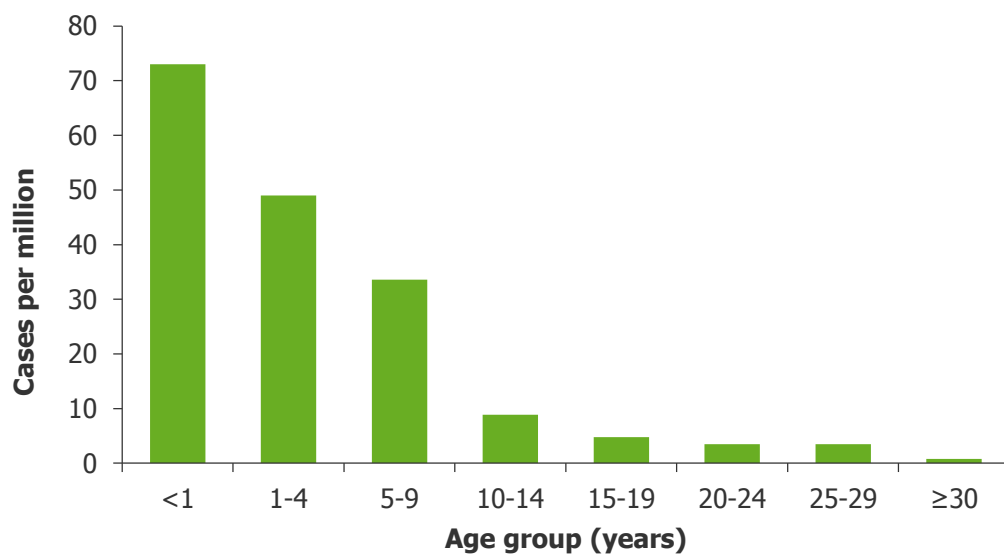


Figure 8. Rubella notification rate (cases per million) by age group, 1 January 2015–31 December 2015, EU/EEA countries (n=2 193 cases with known age)



Epidemic intelligence: Updates since the last report

No new outbreaks have been detected since the last bulletin[†].

According to a press release by [Public Health England](#), rubella susceptibility screening in pregnancy will end in England on 1 April 2016 because:

- rubella infection levels in the UK are so low that rubella is considered eliminated by the World Health Organization;
- rubella infection in pregnancy is very rare;
- being fully immunised with the measles, mumps and rubella (MMR) vaccine before becoming pregnant is more effective in protecting women against rubella in pregnancy;
- the screening test used can potentially give inaccurate results and cause unnecessary stress among women.

Progress towards the WHO elimination goals

WHO has targeted the elimination of measles and rubella in the 53 Member States of the WHO European Region. Elimination is defined as the absence of endemic cases in a defined geographical area for a period of at least 12 months, where there is a well-performing surveillance system. Regional elimination can be declared after 36 or more months' absence of endemic measles or rubella in all Member States[‡].

Although progress has been made towards elimination, this goal has not yet been achieved. At the third meeting of the Regional Verification Commission for Measles and Rubella in November 2014, based on country reports for 2013 data, 14 EU/EEA countries were declared to have interrupted measles transmission, five of which were classified as at risk of endemic transmission being re-established. Eight countries were classified as still having endemic transmission, and seven countries were categorised as inconclusive. For rubella, 16 EU/EEA countries were declared to have interrupted endemic transmission, six of which were classified as being at risk of reestablishment. Eight countries were classified as still having endemic transmission, and five countries were classified as inconclusive[§].

The elimination target is an incidence of <1 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 7.7 cases per million. Thirteen EU/EEA countries that consistently reported measles data over the past 12 months had <1 case per million (Table 1). Twenty-five countries who consistently reported rubella data over the past 12 months reported <1 case per million (Table 2). These figures include imported and import-related cases, and therefore the number of countries having reached 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 reached and maintained for both diseases and in all countries. Data from WHO for 2014** show that vaccination coverage rates were above this target in 16 EU/EEA countries for the first dose of measles- and rubella-containing vaccines. In six countries, vaccination coverage rates for the second dose of measles-containing vaccine were above 95%. (Second-dose coverage was missing for four countries). WHO does not collect data on the coverage of the second dose of rubella-containing vaccine.

If elimination goals are to be reached, vaccination coverage rates will have to be increased for both measles and rubella; immunisation gaps must be closed in young children who are targeted by vaccination programmes and in adolescents (and adults) who have missed opportunities for vaccination in the past. This is relevant at the national and subnational levels because pockets of susceptible individuals still exist throughout the EU/EEA, even in countries with high vaccine coverage.

In order to achieve and accurately document progress towards the elimination goal, high-quality disease 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 case infection. Adequate laboratory investigation is essential because data on 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 reached.

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

[†] <http://ecdc.europa.eu/en/publications/Publications/measles-rubella-quarterly-surveillance-july-2015.pdf>

[‡] 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

[§] http://www.euro.who.int/_data/assets/pdf_file/0011/275519/3rd-Meeting-European-RVC-Measles-Rubella-Elimination.pdf

** http://apps.who.int/immunization_monitoring/globalsummary/timeseries/tscoveragemcv2.html (If estimates from 2014 were not available, 2013 estimates were used.)

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>

Website of 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.

Countries report on measles, rubella and other vaccine-preventable diseases to TESSy at their own convenience. This means that the date of retrieval can influence the data presented in this report. For this reason, the date of data retrieval is indicated for each issue. Later retrievals of data relating to the same period may result in slightly different numbers, as countries have the possibility to update data in TESSy retrospectively.

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 2014 country estimates were unavailable, estimates from 2013 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 2014 country estimates were unavailable, estimates from 2013 were used.

Notification rates were calculated using the most recent population estimates available from Eurostat (2015).