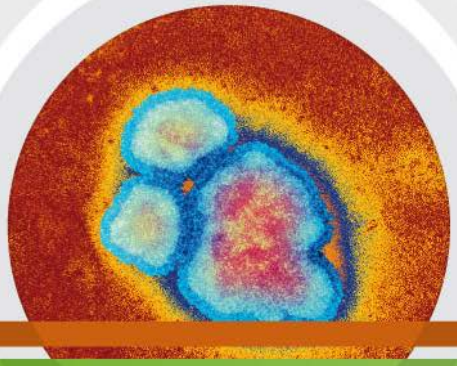


SURVEILLANCE REPORT

Measles and rubella monitoring

April 2015

Reporting on April 2014 – March 2015 surveillance data and epidemic intelligence data to the end of April 2015

Main developments

Measles

- During the 12-month period from April 2014 to March 2015, 3 809 cases were reported by 30 EU/EEA countries with measles surveillance. Twenty-nine countries reported consistently throughout this period.
- Germany and Italy accounted for 69.9% of the cases reported during this period.
- In 11 of the countries reporting consistently, the measles notification rate was less than one case per million population, including six countries which reported 0 cases during the 12-month period.
- The diagnosis of measles was confirmed by positive laboratory results (serology, virus detection or isolation) in 70.1% of all cases.
- Of all cases, 88.3% had a known vaccination status and of these, 81.5% were unvaccinated. In the target group for routine childhood MMR vaccination (1–4-year-old children), 74.1% of the cases were unvaccinated.
- One measles-related death was reported during the period April 2014–March 2015, and six cases were complicated by acute measles encephalitis.
- As of 22 April 2015, the large outbreak of measles in Berlin, ongoing since October 2014, has resulted in 1 134 cases. Measles cases associated with this outbreak have been reported in Norway, France, Sweden and Croatia.
- There are further ongoing outbreaks of measles in several other countries in the WHO European Region: Austria, Bosnia and Herzegovina, Russia, Serbia, and Kyrgyzstan.
- Outside of Europe, measles outbreaks are reported from Mongolia, the Republic of Congo, Guinea, Liberia, Sudan, and Brazil.

Suggested citation: European Centre for Disease Prevention and Control. Measles and rubella monitoring, April 2015 – Reporting on April 2014 to March 2015 surveillance data and epidemic intelligence data to the end of April 2015.

Rubella

- Twenty-seven EU/EEA countries reported 4 394 rubella cases during the period April 2014 to March 2015. Twenty-five countries reported consistently for the 12-month period.
- In 23 of the countries reporting consistently, the rubella notification rate was less than one case per million population, including 14 countries reporting 0 cases during the 12-month period.
- Poland accounted for 96% of all reported rubella cases in the 12-month period; data were reported in an aggregated format. The highest number of cases was observed in 5–9- and 1–4-year-olds. Thirty-two percent of the cases were unvaccinated. However, this figure needs to be interpreted with caution as less than 1% of the cases were confirmed through laboratory testing.
- No outbreaks of rubella have been detected by epidemic intelligence since the last report.
- The Americas were declared free of rubella and congenital rubella syndrome on 29 April 2015.

Measles

Surveillance data

Measles surveillance data were retrieved from The European Surveillance System (TESSy) on 27 April 2015. The analysis covered the 12-month period from April 2014 to March 2015. Thirty EU/EEA countries reported case-based data for the 12-month period (Figure 1, Table 1).

During the 12-month period, 3 809 cases of measles were reported (Figure 2, Table 1). The number of cases observed in March 2015 by country and the notification rates for the 12-month period are shown in Figures 3 and 4. Over the 12-month period, the measles notification rate was less than one case per million population in eleven of the 29 consistently reporting countries, including six countries reporting zero cases (Table 1). The countries which reported the most cases were Germany (45.9% of all cases) and Italy (23.9%) (Table 1).

The highest notification rate was among infants under one year of age (50.2 cases per million population), followed by children aged 1–4 years (29.5) and children aged 5–9 years (15.0) (Figure 5). The diagnosis of measles was confirmed by positive laboratory results (serology, virus detection or isolation) in 70.1% of all cases, although there were large variations between countries in the proportion of laboratory-confirmed cases. This can be attributed to the large variation in the number of cases reported by the countries, different laboratory capacities, and the fact that during an outbreak (e.g. the current one in Germany) laboratory confirmation may not be considered necessary for all cases because of the higher positive predictive value of a clinical diagnosis.

Vaccination status was known for 3 365 (88.3%) of the 3 809 cases reported. Of these, 81.5% (2 742 cases) were unvaccinated, 10.5% (353) had received one dose of measles vaccine, 6.2% (208) had received two or more doses, and 1.8% (62) had received an unknown number of doses. The proportion of unvaccinated cases was high across all age groups and highest among children 10–14 years of age (83%) and children under one year of age (94%). Cases in this latter age group 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 – 74% of cases were unvaccinated (Figure 6). Measles vaccination coverage (two doses) for each country is presented in Figure 3.

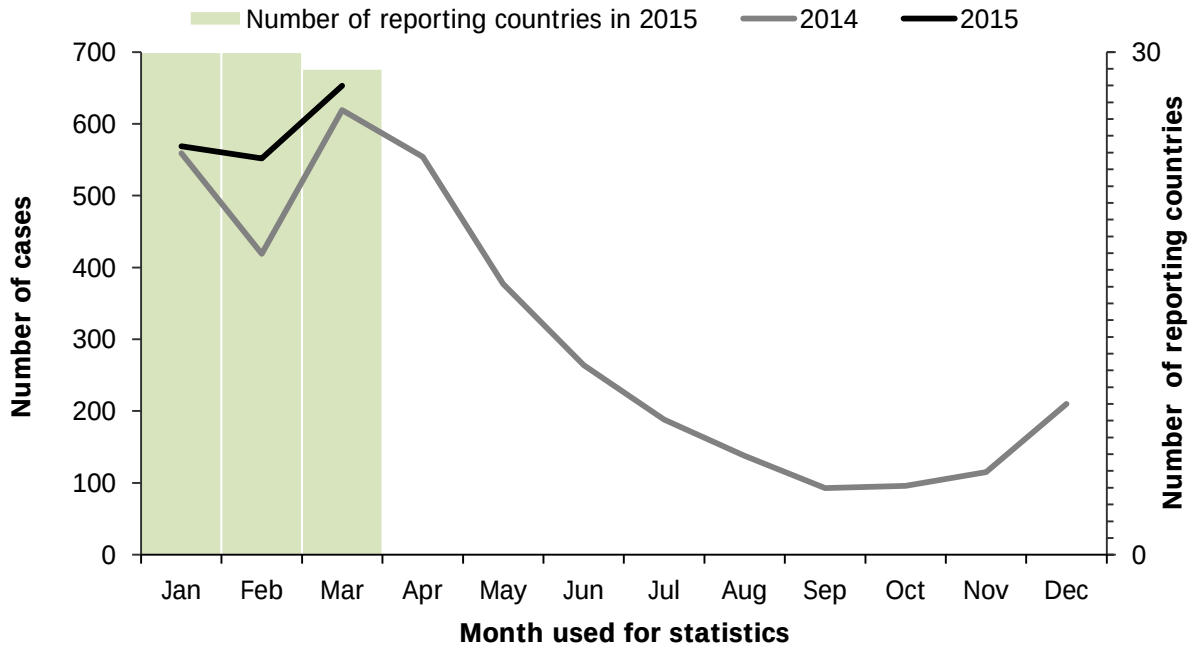
Notification rate by age group was calculated for the two countries reporting most cases (Figure 7a–d). In Germany, higher rates were observed in infants below the age of one and children between one and four years of age. In Italy, higher rates were observed among children between one and four years of age, followed by young adults aged 25–29 years. In both countries, the majority of cases were unvaccinated.

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

The number of cases of measles in the European Union was low compared to recent years (Figure 2). This is most likely due to the impact that recent epidemics had on population immunity levels in EU/EEA Member States, i.e. the number of susceptible individuals within populations dropped. However, the number of cases remains high, particularly when considering that measles and rubella are targeted for elimination in Europe by 2015. High population immunity and high-quality surveillance are essential to achieving this goal. To interrupt the circulation of the virus, vaccination coverage of at least 95% must be reached, with two doses of measles-containing vaccine

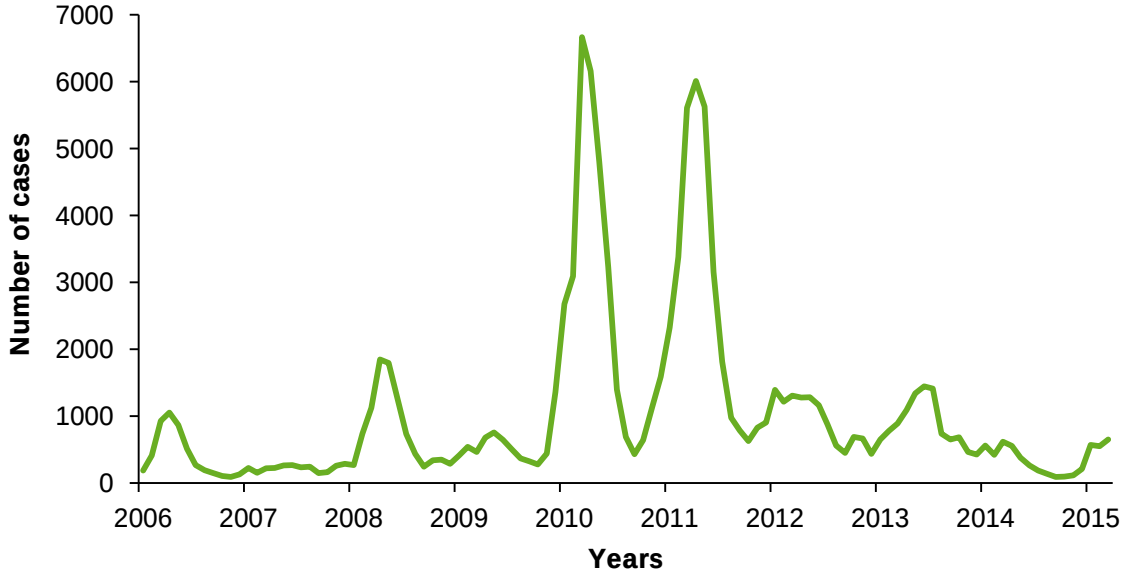
administered through routine vaccination*. WHO data from 2013 show that coverage rates in 22 EU/EEA Member States are below this target, while pockets of susceptible individuals still exist throughout the EU – even in countries with high vaccine coverage. Measures implemented in the Member States will need to be expanded and accelerated if the elimination target is to be reached.

Figure 1. Number of measles cases in 2014 and 2015, and number of countries reporting in 2015, by month, EU/EEA



Note: All countries reported data for all months during 2014.

Figure 2. Distribution of measles cases by month, EU/EEA countries, January 2006–March 2015



Note: During the period January 2006–February 2015, 30 EU/EEA countries consistently reported data on measles every month. In March 2015, Croatia did not report data on measles. All 30 countries are included in the figure; Croatia is included from 2012 onwards.

* World Health Organization, Regional Committee for Europe. Renewed commitment to elimination of measles and rubella and prevention of congenital rubella syndrome by 2015 and sustained support for polio-free status in the WHO European Region. World Health Organization, Regional Office for Europe: Copenhagen; 2012.

Table 1. Number of measles cases by month and notification rate (cases per million) by country, April 2014–March 2015, EU/EEA countries

Country	2014									2015			Total cases	Cases per million	Total lab-positive cases
	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar			
Austria	5	8	17	4	0	0	3	6	17	37	27	51	175	20.7	131
Belgium	10	28	1	0	1	4	2	5	8	6	7	5	77	6.9	52
Bulgaria	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0
Croatia	1	0	0	0	0	0	0	1	13	43	30	NR	88	21.0	55
Cyprus	6	0	0	0	0	0	0	0	0	0	0	0	6	6.9	6
Czech Republic	62	29	57	22	12	4	0	0	0	1	3	1	191	18.2	189
Denmark	10	1	1	1	3	0	0	0	0	0	1	1	18	3.2	17
Estonia	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0
Finland	0	0	1	0	0	0	0	0	0	0	1	0	2	0.4	0
France	33	45	43	15	9	5	3	7	7	7	5	10	189	2.9	91
Germany	39	28	33	17	31	26	35	34	116	432	420	538	1749	21.4	1148
Greece	0	0	0	0	0	0	0	1	0	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	10	0	0	1	0	2	0	1	2	2	1	1	20	4.4	5
Italy	268	195	96	92	74	45	45	29	20	14	19	15	912	15.3	632
Latvia	25	9	0	2	0	0	0	0	0	0	0	0	36	17.8	35
Lithuania	1	2	5	1	0	0	0	0	0	0	0	4	13	4.4	13
Luxembourg	0	1	0	0	0	0	0	0	0	0	0	0	1	1.9	1
Malta	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0
Netherlands	21	5	1	1	2	2	0	0	0	0	0	0	32	1.9	30
Norway	2	0	1	0	0	0	0	0	0	0	0	2	5	1.0	5
Poland	19	7	2	7	2	1	2	0	2	1	6	13	62	1.6	44
Portugal	0	0	0	0	0	0	0	0	0	2	0	0	2	0.2	0
Romania	3	5	0	2	0	1	0	0	1	1	2	0	15	0.7	8
Slovakia	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0
Slovenia	0	1	0	1	0	0	0	28	22	5	8	2	67	32.5	65
Spain	27	8	1	1	1	1	0	0	1	9	9	7	65	1.4	59
Sweden	0	3	2	4	1	1	4	1	1	3	2	1	23	2.4	23
United Kingdom	12	2	3	17	2	1	2	2	0	6	11	2	60	0.9	60
Total	**554**	**377**	**264**	**188**	**138**	**93**	**96**	**115**	**210**	**569**	**552**	**653**	**3809**	**7.4**	**2670**

NR: Data not reported. Liechtenstein does not report.

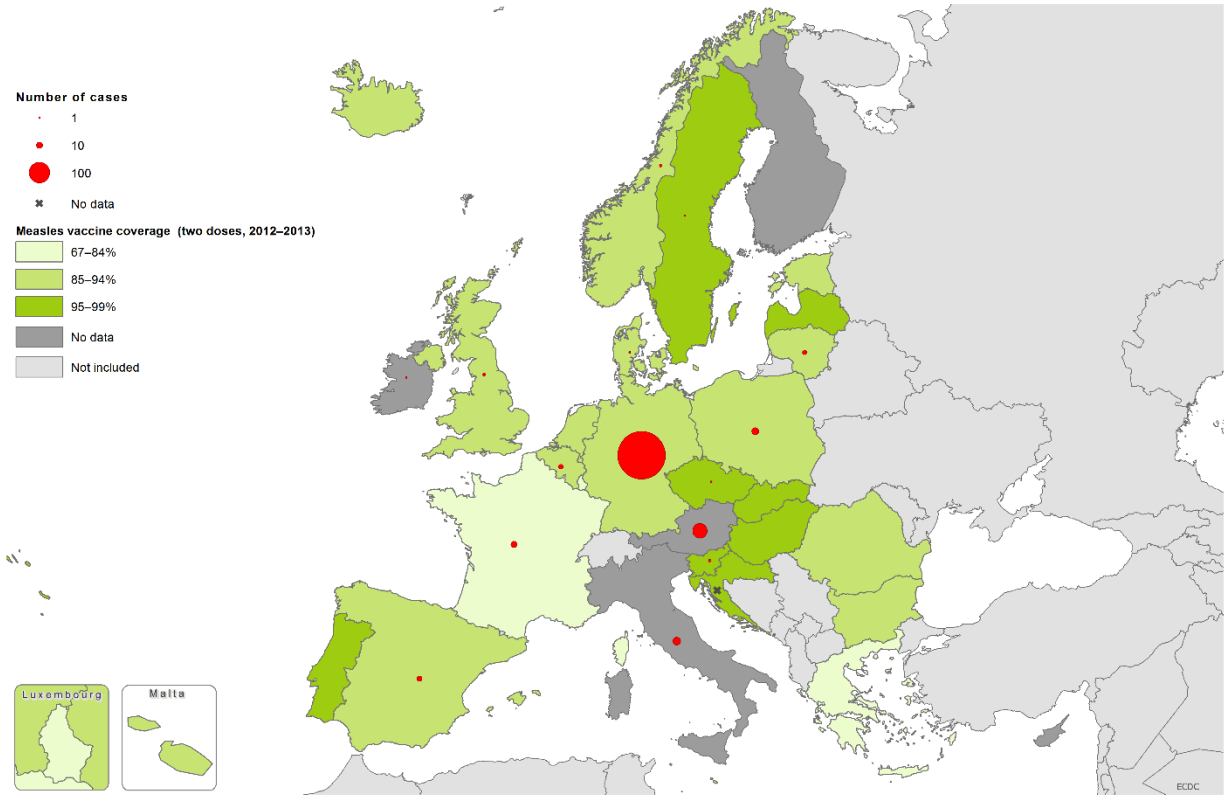
Countries with a notification rate ≥ 1 per million population are highlighted in green. The threshold adopted as an indicator of progress towards elimination is an incidence of less than one case per million population per year (including confirmed, probable and possible cases, but excluding imported cases).

Achieving this target is consistent with progress towards elimination but does not define elimination or confirm that it has been achieved. In the table, all cases (endemic, imported, import-related) are included for the calculation of the notification rate.

All confirmed, probable, possible or unknown cases, as defined by the EU 2012 case definitions, are included.

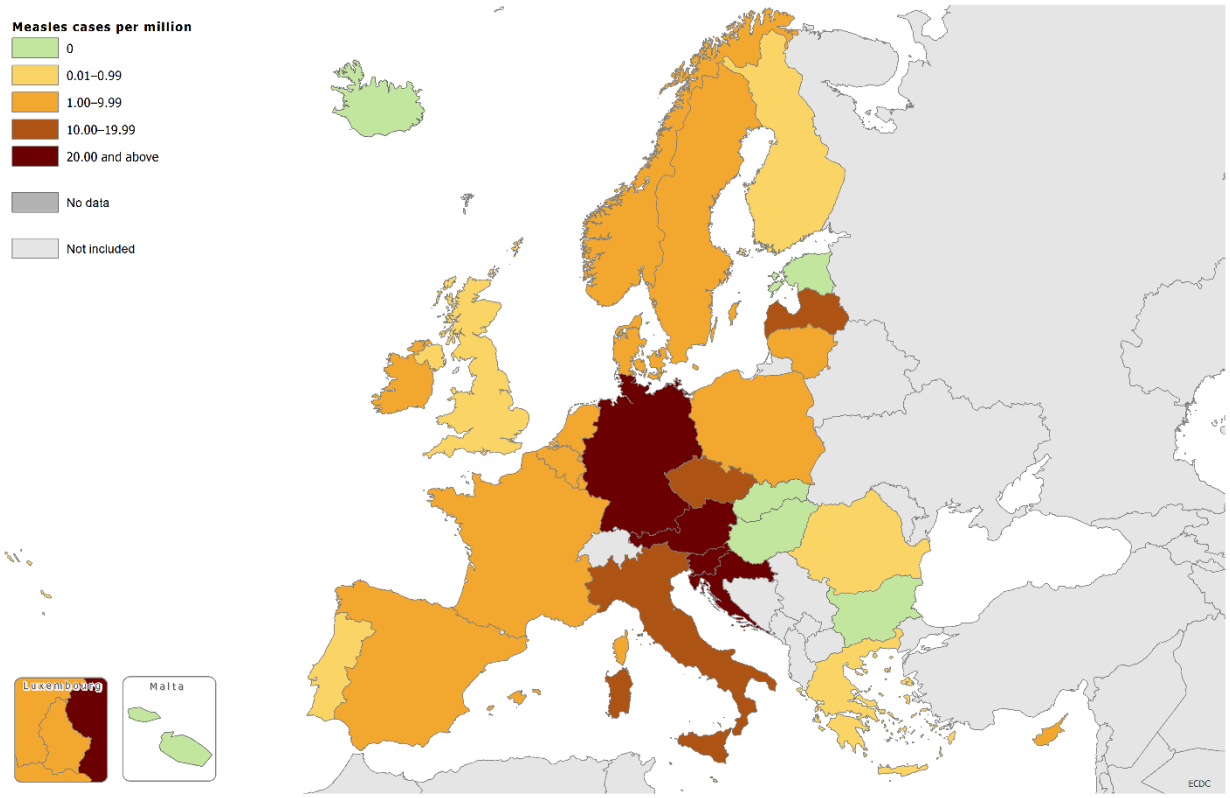
Tables on measles cases in previous years are available from:
http://www.ecdc.europa.eu/en/healthtopics/measles/epidemiological_data/pages/annual_epidemiological_reports.aspx

Figure 3. Distribution of measles cases by country, March 2015 (N=653), and vaccine coverage (two doses, 2012–2013, 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 4. Measles notification rate (cases per million) by country, April 2014–March 2015, EU/EEA countries (n=3 809)



Note: For interactive maps on measles see http://ecdc.europa.eu/en/data-tools/atlas/Pages/atlas.aspx

Figure 5. Measles notification rate (cases per million) by age group, April 2014–March 2015, EU/EEA countries (n=3 807 cases with known age)

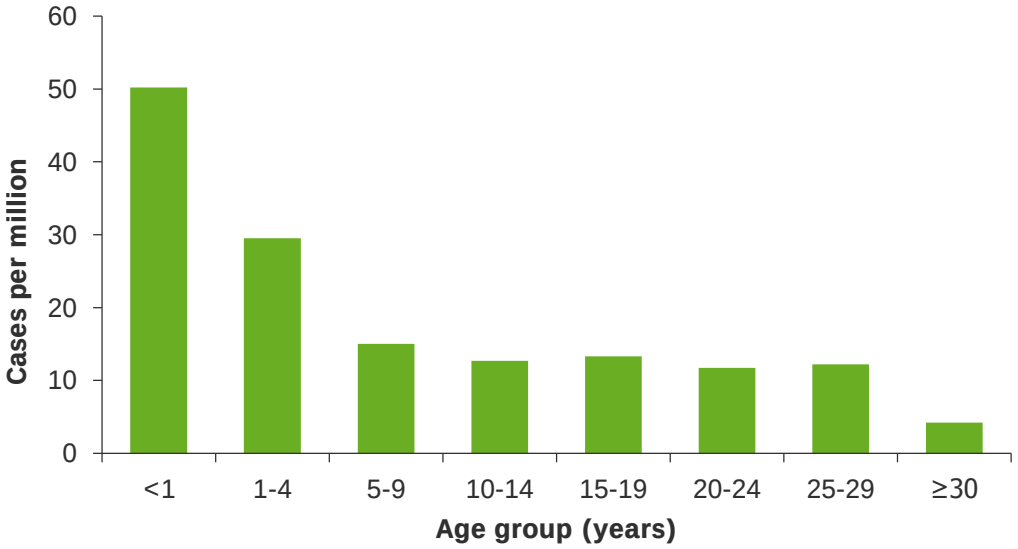


Figure 6. Percentage distribution of vaccination status among measles cases by age group, April 2014–March 2015, EU/EEA countries (n=3 807 cases with known age)

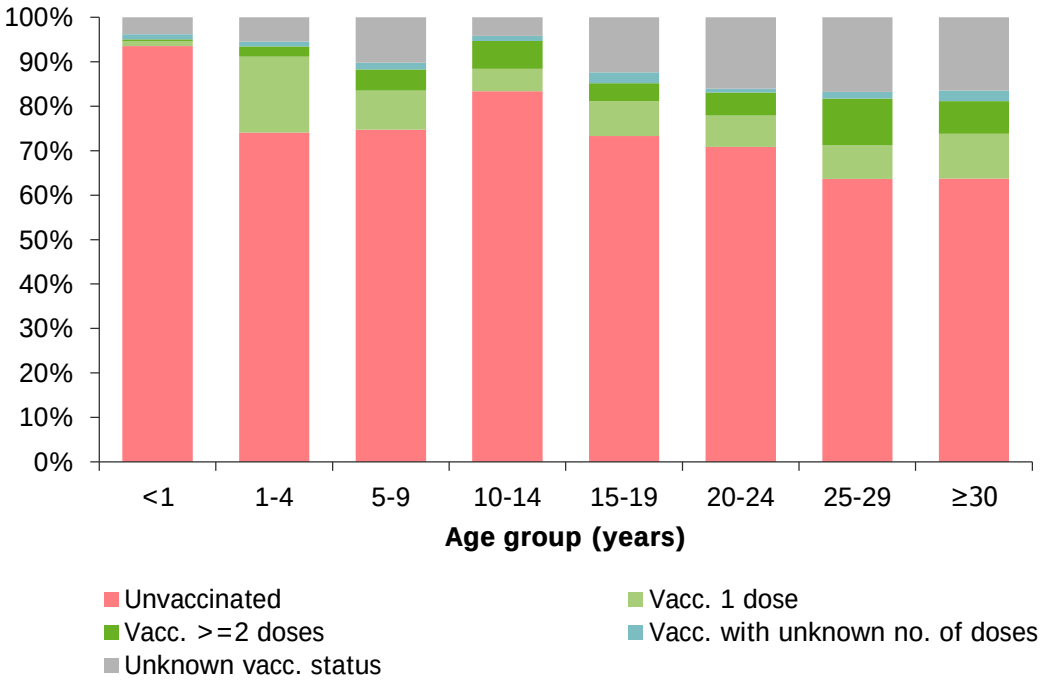


Figure 7. Notification rate of measles cases and vaccination status for the two countries (Germany, Italy) with the highest proportion of cases, by age group, April 2014–March 2015

Figure 7a. Measles notification rate (cases per million) by age group, Germany, April 2014–March 2015

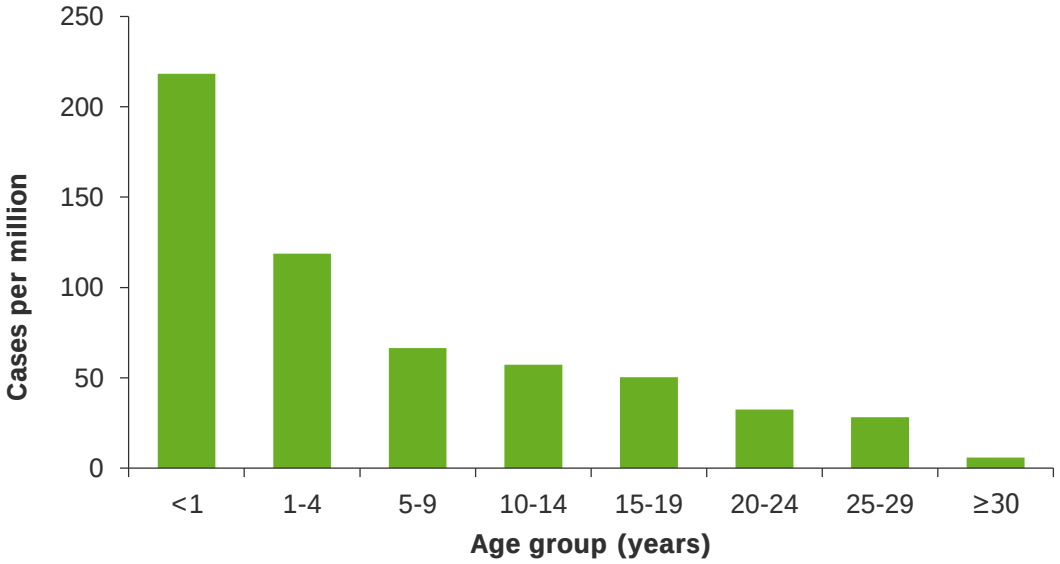


Figure 7b. Number of measles cases by age group and vaccination status, Germany, April 2014–March 2015

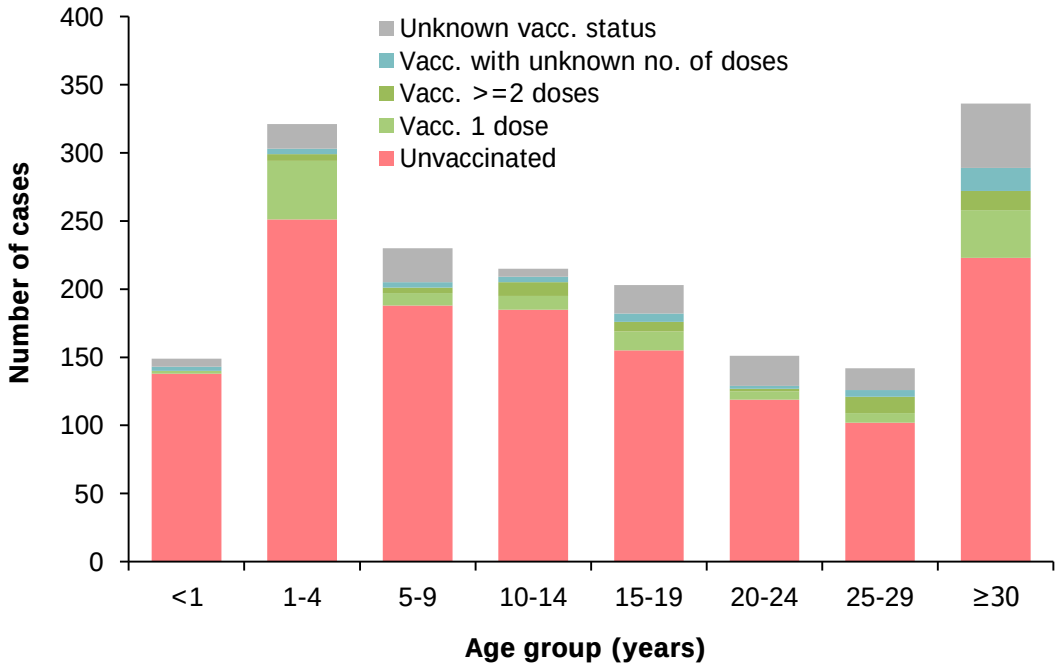


Figure 7c. Measles notification rate (cases per million) by age group, Italy, April 2014–March 2015

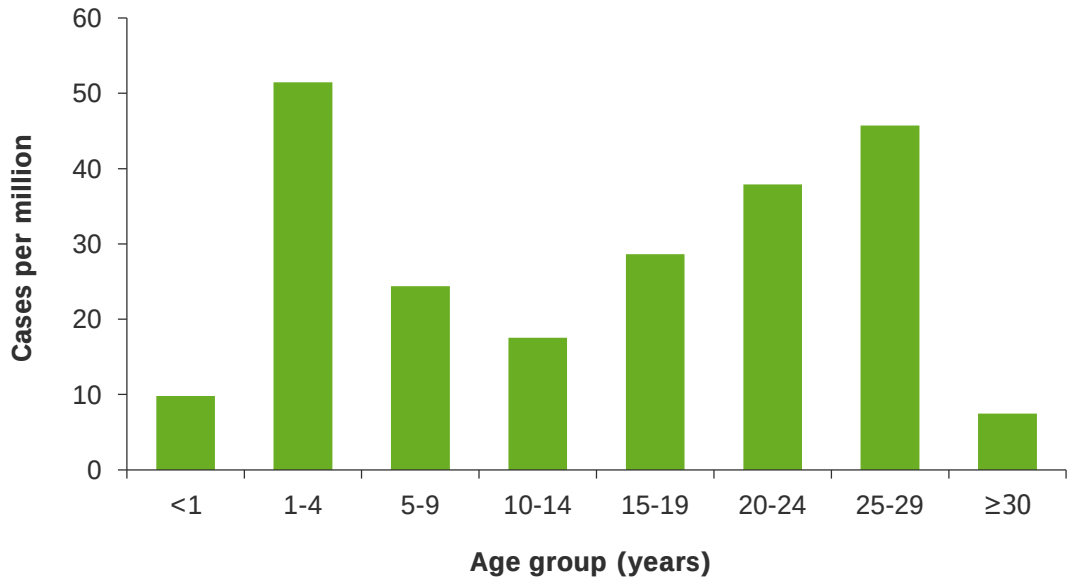
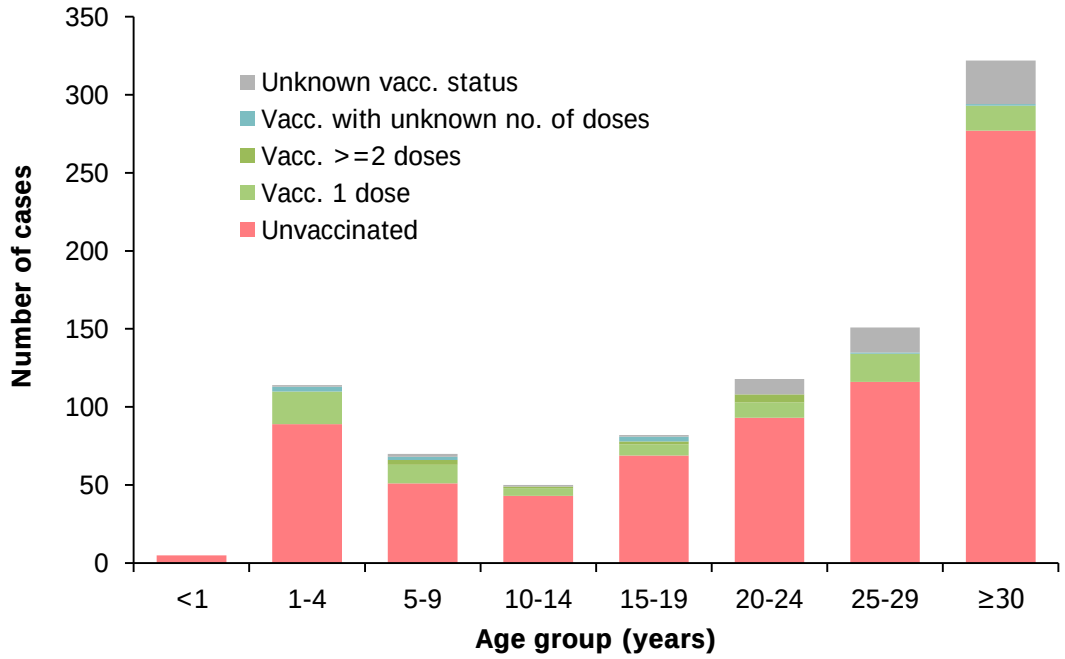


Figure 7d. Number of measles cases by age group and vaccination status, Italy, April 2014–March 2015



Epidemic intelligence

Updates since the last report[†]: EU Member States

Germany – update

According to health authorities in Berlin, the outbreak of measles that started in October 2014 is still ongoing. The index case was a child asylum seeker from Bosnia and Herzegovina. The outbreak later spread to the general population. As of 15 May 2015, 1 172 cases have been reported between October 2014 and April 2015. Around a quarter of the cases needed hospitalisation. There was one death in an 18-month-old toddler in February 2015. Health authorities are providing post-exposure vaccinations in affected institutions and are strongly encouraging the population to receive free catch-up immunisations as soon as possible.

There are ongoing outbreaks of measles in several other places in Germany, e.g. in the federal states of Thuringia (Erfurt, Gotha, and at Weimar Bauhaus University) and Saxony (Dresden).

Norway ex Germany

News media reported that a traveller from Berlin who arrived in Oslo by airplane on 17 April was diagnosed with measles, and that there is another suspected case who is a child that travelled together with the first case.

France

An outbreak of measles, involving 47 unvaccinated cases, was reported in the department of Haut-Rhin bordering Germany and Switzerland (part of the Alsace region of France). The index case, a pupil at an anthroposophic school, was probably exposed to measles in Berlin during a school trip, following a contact with a confirmed case while staying with a German family. Due to very low vaccination coverage in the pupil's school, the virus spread easily in the school with secondary cases in siblings and friends. ECDC has prepared a rapid risk assessment on this outbreak[‡]. Health authorities in Luxembourg posted recommendations to travellers to Alsace based on the ECDC risk assessment.

Austria

The Ministry of Public Health of Austria reported 152 cases of measles between 1 January and 21 April, compared with 117 cases for the whole of 2014. Of the nine provinces, seven are affected (all except Vorarlberg and Burgenland), with Lower Austria (48.7%) and Upper Austria (21%) reporting the most cases this year. The reported measles cases appear to be associated with separate clusters. The cases occurred in all age groups. Adolescents and young adults were most commonly affected. Six of the cases were infants too young to be vaccinated. The oldest case was 64 years old. Twenty-four cases had to be admitted to hospital (16%). Five cases were imported from abroad: two from Germany, two from Bosnia and Herzegovina, and one from India. Genotype D8, associated with the outbreaks in Bosnia and Herzegovina and Berlin, was identified in all 31 tested samples.

Updates since the last report: Rest of the world

Serbia – update

Since November 2014, and as of 17 April 2015, Serbian health authorities report 348 suspected cases of measles in several outbreaks affecting several areas of the country. Eighty people have been hospitalised so far.

Kyrgyzstan

The WHO Regional Office for Europe reports ongoing immunisation campaigns in Kyrgyzstan, where the number of suspected cases has reached over 16 000 by April 2015. The outbreak has exposed widespread immunity gaps in the population, highlighting the urgent need to increase vaccination coverage through both enhanced routine and supplementary immunisation activities.

Russia

The media reported an outbreak in Krasnoyarsk with 20 suspected cases of measles in unvaccinated children and adults. There have been no cases in the region since 2013.

[†] http://www.ecdc.europa.eu/en/publications/Publications/Measles-rubella-quarterly-Dec2014.pdf

[‡] http://ecdc.europa.eu/en/publications/Publications/measles-rapid-risk-assessment-France-may-2015.pdf

Mongolia
Although Mongolia was certified measles free in June 2014, an outbreak was reported in mid-March 2015. Cases were reported in Ulaanbaatar, and then spread to other areas including Omnogovi, Uvurkhangai, Darkhan-Uul, Dornogovi and Orkhon provinces. More than 400 cases are suspected, 120 of whom are confirmed. Many of those infected are infants who are too young to be vaccinated; however, older children and adults are also affected.

Republic of the Congo
News media, quoting health officials, reported that an outbreak of measles with around 800 cases including 30 deaths is ongoing 550 kilometres south of Pointe Noire. To contain the spread of the epidemic, the Congolese Government launched a vaccination campaign aimed at vaccinating 191 000 children between six months and five years of age.

Sudan
OCHA reports an outbreak of measles with 1 730 cases and 22 deaths as of 12 April. OCHA said that measles cases have been reported in 31 localities in 14 states of Sudan. The World Health Organization stated that Sudan has already received 2.4 million out of the 9.6 million doses of measles vaccine ordered to support a government mass immunisation campaign for 7.9 million children across the country.

Brazil
As of 24 April, there were 797 suspected cases of measles in 2015 in Ceará, of which 604 were discarded and another 90 are under investigation according to a media report. In 2014, there were 95 confirmed cases. The Department of Health decided to extend an ongoing vaccination campaign until 2 May 2015.

Updates since the last report: Ebola-affected countries

Liberia
According to the media quoting Ministry of Health officials, outbreaks of measles are affecting 10 of Liberia's 15 counties, with at least 363 cases reported this year as of 28 April, including four fatalities.

Guinea
MSF reports that 1 105 suspected cases have been reported from Guinea. A measles vaccination campaign aims to vaccinate 1.3 million children between six months and nine years of age. According to temporary numbers, Nzérékoré prefecture achieved a 39% participation rate in the first three days of the week-long campaign, far below the target of 95% by the end of the campaign.

Rubella

Enhanced surveillance data

Rubella surveillance data were retrieved from The European Surveillance System (TESSy) on 27 April 2015. The analysis covered the 12-month period from April 2014 to March 2015.

Two EU countries – Belgium and France – do not operate rubella surveillance systems with national coverage and therefore do not contribute data to the EU/EEA enhanced rubella surveillance. Of the 28 contributing countries, 25 reported data for the entire 12-month period. Italy did not report for the entire period, Austria did not report data for November and December 2014, and Cyprus did not report data for March 2015 (Figure 8, Table 2).

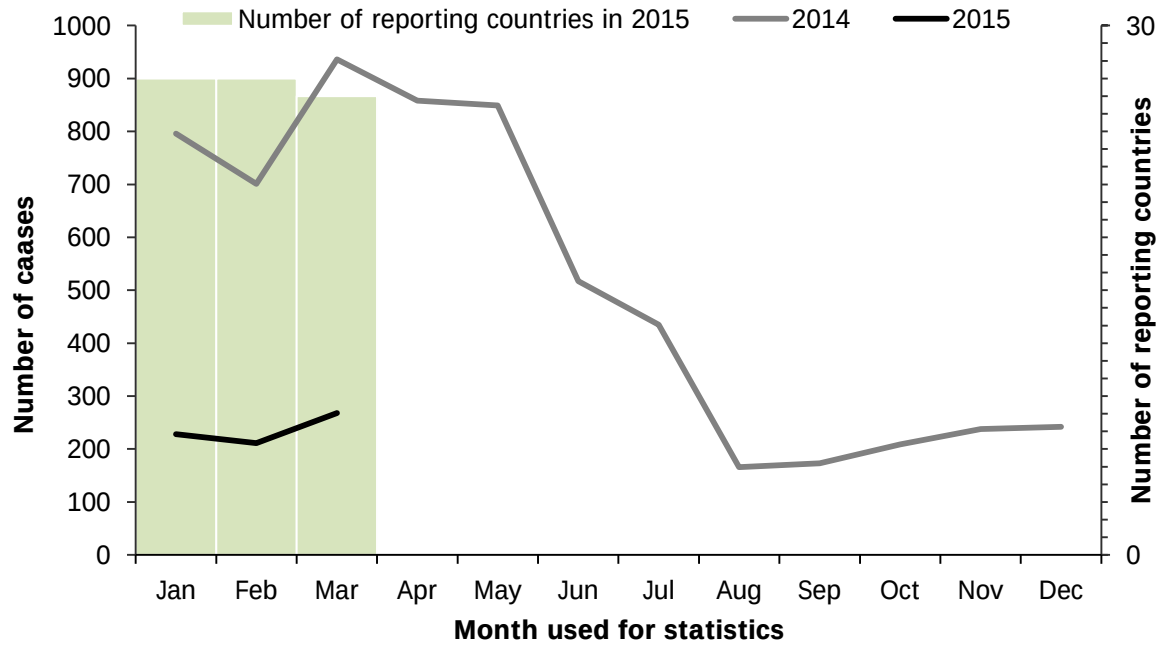
During the period April 2014–March 2015, 4 394 cases of rubella were reported. Two percent (n=88) of the cases were reported as laboratory confirmed (by serology, virus detection or isolation) (Table 2). The number of cases reported by countries in March 2015 and the notification rates for the entire 12-month period are shown in Figures 9 and 10. The rubella notification rate was less than one case per million population in 23 of the 25 countries which reported consistently over the 12-month period, including 14 countries which reported zero cases.

The highest notification rates were observed in cases between one and four years of age (70.5 cases per million population) and in cases between five and nine years of age (68.6) (Figure 11).

Poland accounted for 96% (n= 4 215) of all reported rubella cases in the 12-month period. Data were reported in an aggregated format. The highest number of cases was observed among 5–9-year-olds (n=1 295) and 1–4-year-olds (n=1 042). Among 15–19-year-olds, the male–female ratio was almost 6:1; among 20–24-year-olds it was greater than 5:1 (Table 3). The high proportion of cases observed among males aged 15–24 years compared with females reflects previous immunisation policies in Poland where adolescent girls were selectively vaccinated between 1989 and 2004. A universal two-dose MMR vaccination programme has been in place since 2004. The one-dose coverage rate was reported to be 98% in 2013.

A total of 1 369 cases (32.5%) in Poland reported over the 12-month period were unvaccinated, 1 869 (44.3%) cases were vaccinated with one dose, 303 (7.2%) cases had received two or more doses, and 674 (16.0%) cases had an unknown vaccination status. However, these figures need to be interpreted with caution as only 38 cases were reported with a positive laboratory test.

Figure 8. Distribution of rubella cases in 2014 and 2015 and number of countries reporting in 2015, by month, EU/EEA



Note: Belgium and France do not have rubella surveillance with national coverage. Of the countries that have rubella surveillance with national coverage, only Cyprus, Austria and Italy did not report data for all months in the 12-month period.

Table 2. Number of rubella cases by month and notification rate (cases per million) by country, April 2014–March 2015, EU/EEA countries

Country	2014									2015			Total cases	Cases per million	Total lab-positive cases
	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar			
Austria	0	1	3	1	0	2	0	NR	NR	0	0	0	7	0.8	7
Belgium	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	-	-
Bulgaria	0	0	1	0	0	0	0	0	0	0	1	0	2	0.3	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	NR	0	0.0	0
Czech Republic	0	0	0	0	0	0	0	0	0	1	0	0	1	0.1	1
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
France	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	-	-
Germany	15	25	16	20	5	8	8	8	2	11	6	8	132	1.6	25
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	1	1	1	0	0	0	0	0	1	0	4	0.9	1
Italy	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	-	-
Latvia	0	0	0	1	0	0	0	0	0	0	0	0	1	0.5	1
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	1	0	0	0	0	0	0	0	0	1	0.1	1
Norway	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0
Poland	837	822	493	410	157	159	201	226	239	216	199	256	4215	109.4	38
Portugal	1	0	0	0	2	1	0	3	0	0	0	1	8	0.8	2
Romania	5	1	2	1	0	2	0	1	1	0	2	0	15	0.7	6
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	1	1	0	0	0	0	1	1	4	0.1	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	2	4	0.1	4
Total	**858**	**849**	**517**	**435**	**166**	**173**	**209**	**238**	**242**	**228**	**211**	**268**	**4394**	**	**88**

NR: Data not reported. Liechtenstein does not report.

Countries with a notification rate ≥ 1 per million population are highlighted in green. The threshold adopted as an indicator of progress 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 define elimination or confirm that it has been achieved. In the table, all cases (endemic, imported, import-related) are included for the calculation of the notification rate. For countries that did not report data for all 12 months, notification rates might be underestimated.

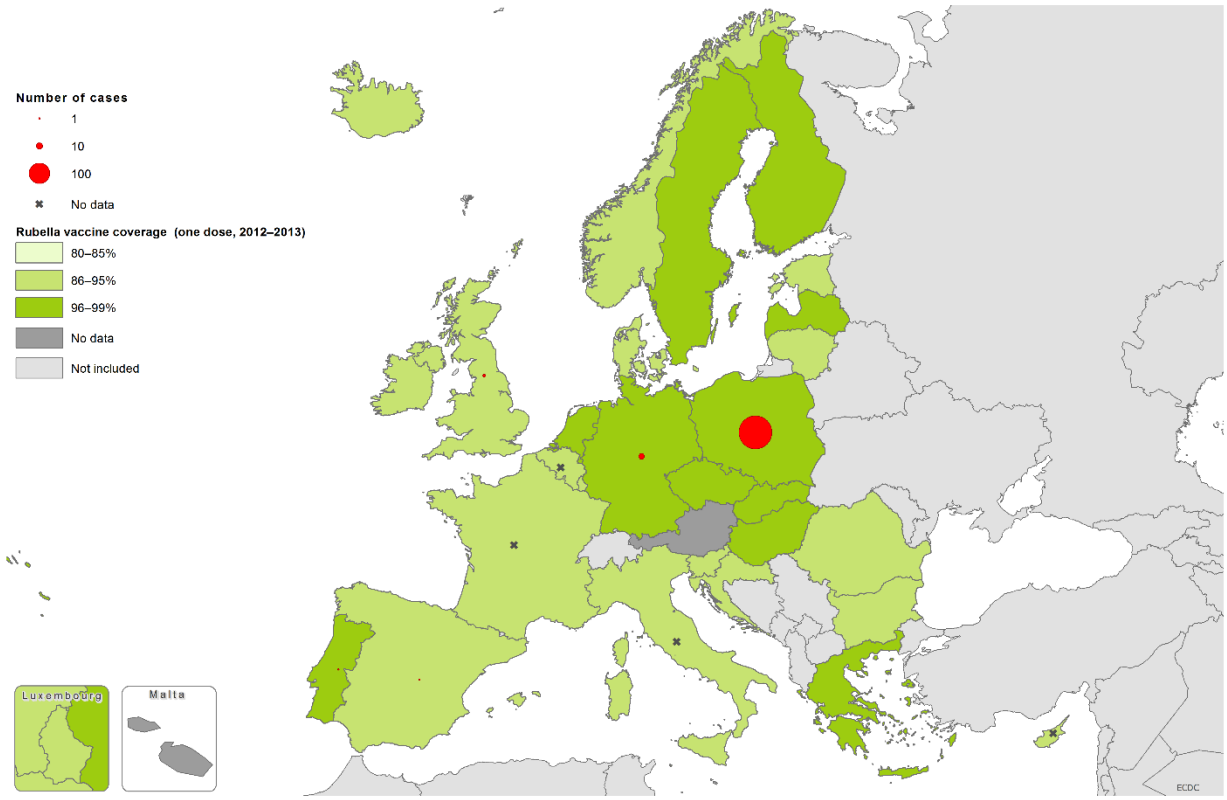
All confirmed, probable, possible or unknown cases, as defined by the EU 2012 case definition, are included.

** 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.*

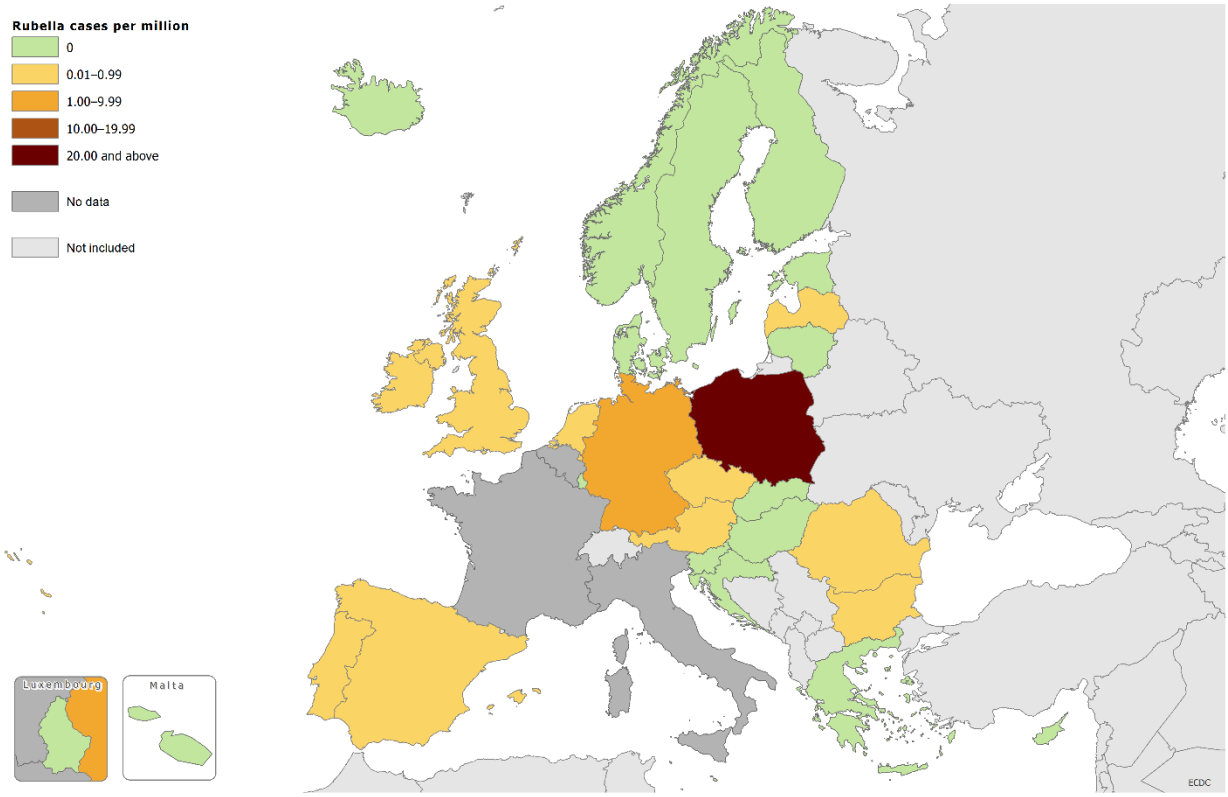
For tables relating to number of rubella cases in previous years, see:
http://www.ecdc.europa.eu/en/healthtopics/rubella/epidemiological-data/pages/epidemiological_data.aspx

Figure 9. Number of rubella cases by country, March 2015 (n=268), and rubella vaccine coverage (one dose, 2012–2013, 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 (cases per million) by country, April 2014–March 2015, EU/EEA countries (n=4 394)



For interactive maps on rubella see http://ecdc.europa.eu/en/data-tools/atlas/Pages/atlas.aspx.

Figure 11. Rubella notification rate (cases per million) by age group, April 2014–March 2015, EU/EEA countries (n=4 394 cases with known age)

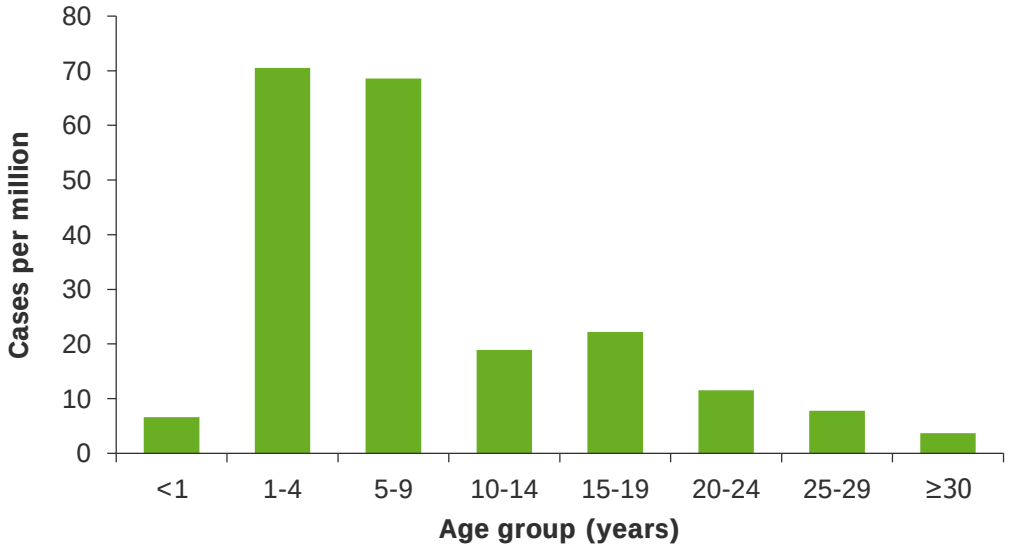


Table 3. Number of rubella cases by age group and gender, Poland, April 2014–March 2015

Age group (years)	Males	Females	Total number of cases
< 1	175	133	308
1–4	581	461	1 042
5–9	674	621	1 295
10–14	215	134	349
15–19	382	65	447
20–24	225	42	267
25–29	92	94	186
≥ 30	95	226	321
Total	**2 439**	**1 776**	**4 215**

Epidemic intelligence

Updates since the last report

No new outbreaks have been detected since the last monthly update[§].

The Americas are declared free of endemic transmission of rubella and congenital rubella syndrome (CRS) according to a press release from PAHO/WHO.

Rubella and CRS are the third and fourth diseases to be eliminated in the region, following smallpox in 1971 and polio in 1994. In all four cases, the Americas region was the first in the world to eliminate these diseases.

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 the 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 the European Surveillance System 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. 2013 vaccine coverage (estimate) of two doses of measles-containing vaccine was used; if estimates from 2013 were not available, estimates from 2012 were used. Some countries only report the coverage of one dose of measles-containing vaccine. For more information, please check the above link to the WHO Global Database.

Rubella. 2013 vaccine coverage (estimate) of one dose of rubella vaccine was used; if estimates from 2013 were not available, estimates from 2012 were used.

Notification rates were calculated using the most recent population estimates available from Eurostat (2014).

[§] http://www.ecdc.europa.eu/en/publications/Publications/Measles-rubella-quarterly-Dec2014.pdf