

## SURVEILLANCE REPORT

# Measles and rubella monitoring

January 2015

Reporting on January – December 2014 surveillance data  
and epidemic intelligence data to the end of January 2015

## Main developments

### Measles

- During the 12-month period from January to December 2014, 30 EU/EEA countries conducting measles surveillance reported 3 616 cases. All 30 countries reported consistently throughout the 12-month period.
- Germany and Italy accounted for 58.6% of the cases reported in the period.
- In nine of the 30 countries, the measles notification rate was less than one case per million population including six countries reporting 0 cases during the 12-month period.
- Of all cases, 68.8% tested positive for measles (serology, virus detection or isolation).
- Of all cases, 89.6% had a known vaccination status and of these, 83.0% were unvaccinated. In the target group for routine childhood MMR vaccination (1–4-year-old children), 75% of the cases were unvaccinated.
- No measles-related deaths were reported during the period January–December 2014, and five cases were complicated by acute measles encephalitis.
- An outbreak of measles in Slovenia in November 2014 was linked to exposure at an international event in the country.
- There is a large outbreak of measles in Berlin, with 412 cases reported as of 4 February 2015. The outbreak, ongoing since October 2014, initially affected asylum seekers from Bosnia and Herzegovina and Serbia but has now spread to the general population.
- There are also ongoing outbreaks of measles in several other countries in Europe: Bosnia and Herzegovina, Serbia and Kyrgyzstan.
- Outside of Europe, measles outbreaks are reported in the USA, Canada, China, Sudan and Papua New Guinea.

## Rubella

- Twenty-eight EU/EEA countries reported 6 110 rubella cases during the period January to December 2014. Twenty-six countries reported consistently for the 12-month period.
- In 22 of the 26 consistently reporting countries, the rubella notification rate was less than one case per million population, including 13 countries reporting 0 cases during the 12-month period.
- Poland accounted for 96.5% 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-eight 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.
- In Europe, no outbreaks of rubella have been detected by epidemic intelligence since the last report. There is an ongoing outbreak of rubella in Vietnam.

## Measles

### Surveillance data

The measles surveillance data were retrieved from The European Surveillance System (TESSy) on 26 January 2015. The analysis covered the 12-month period from January to December 2014. Thirty EU/EEA countries reported case-based data for the 12-month period (Figure 1, Table 1).

During the 12-month period, 3 616 cases of measles were reported (Table 1), which is low compared to the epidemic years of 2010 (n=32 480), 2011 (n=32 033), as well as 2012 (n=11 316) and 2013 (n=10 537) (Figure 2). The number of cases observed in December 2014 by country and the notification rates for the 12-month period are shown in Figures 3 and 4. The measles notification rate was less than one case per million population in nine of the 30 countries which reported consistently over the 12-month period, including six countries reporting zero cases (Table 1). The countries which reported the most cases were Italy (46.3% of all cases) and Germany (12.3%) (Table 1).

The highest notification rate was among infants under one year of age (38.1 cases per million population), followed by children aged 1–4 years (25.3) and adolescents aged 15–19 years (13.2) (Figure 5). Of all cases, 68.8% tested positive for measles (serology, virus detection or isolation), although there were large variations between countries in the proportion of laboratory-confirmed cases, which can be attributed to the large variation in the number of cases reported by the countries as well as different laboratory capacities.

Vaccination status was known for 3 240 (89.6%) of the 3 616 cases reported. Of these, 83.0% (2 690 cases) were unvaccinated, 9.4% (306) had received one dose of measles vaccine, 6.6% (213) had received two or more doses, and 1.0% (31) 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 (84%) and children under one year of age (96%). 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 – 75% of cases were unvaccinated (Figure 6). The measles vaccination coverage (two doses) for each country is presented in Figure 3.

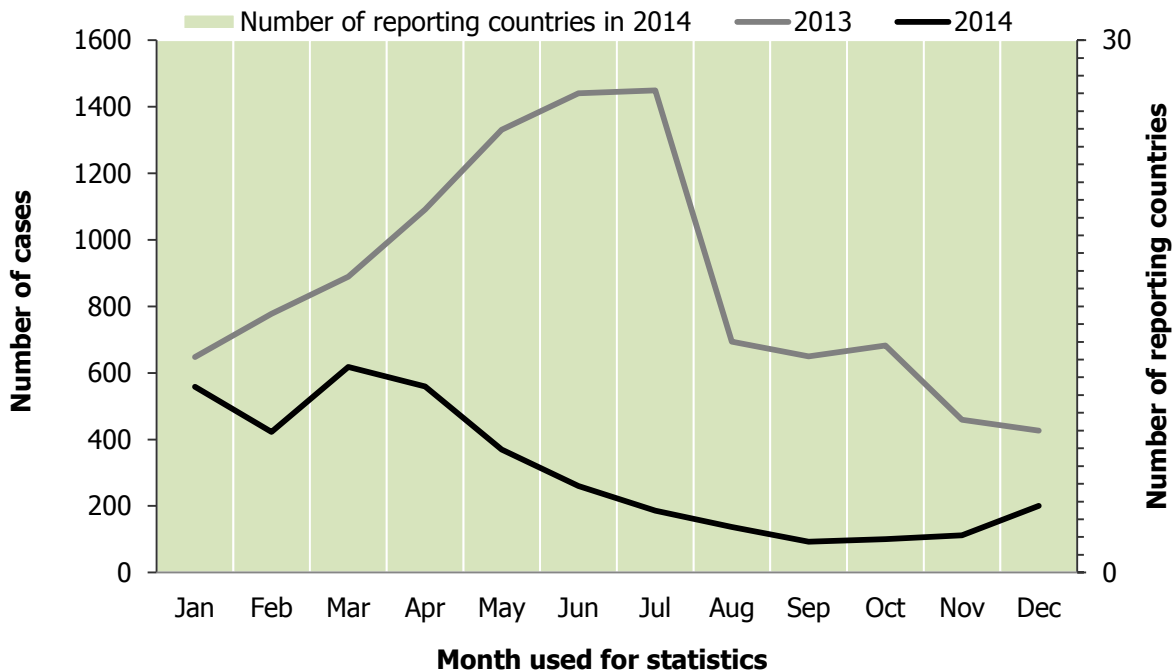
The notification rate by age group was calculated for the two countries reporting most cases (Figure 7a–d). In Italy, higher rates were observed among children between one and four years of age, followed by similar rates observed among adolescents and young adults aged 15–19, 20–24 and 25–29 years. In Germany, higher rates were observed in infants below the age of one and children between one and four years of age. In both countries, the majority of cases were unvaccinated.

Over the 12-month period, five cases were complicated by acute measles encephalitis. No deaths were attributed to measles.

The number of cases of measles in the European Union was low compared to recent years. This is most likely attributable to the dynamics of the transmission of infection in the population, as epidemics in recent years have reduced the number of susceptible persons within the population in different Member States. However, the number of cases remains high, 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

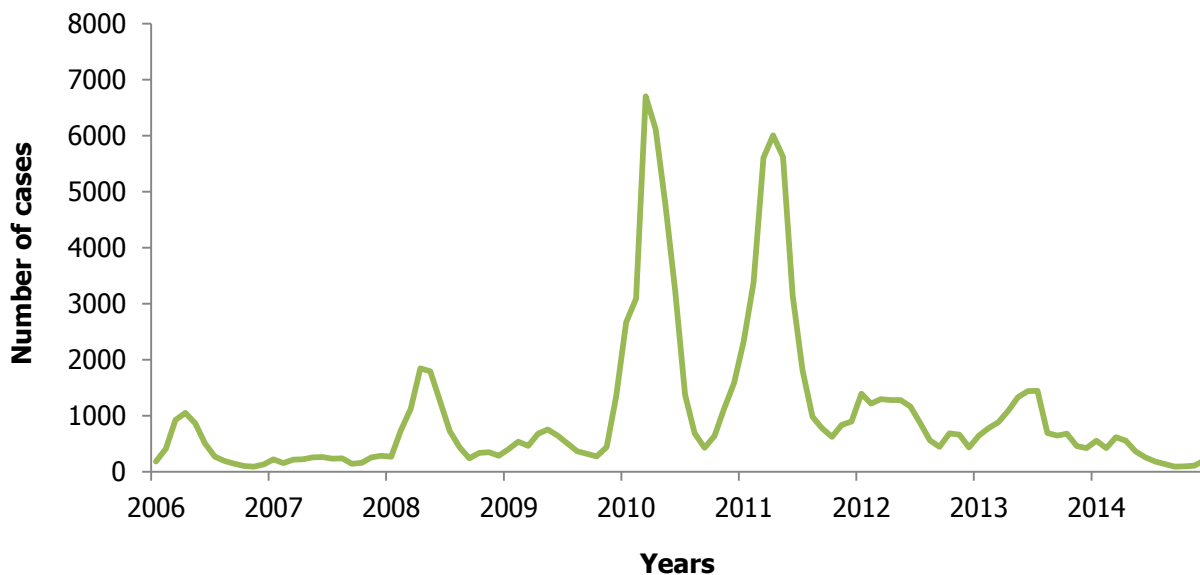
administered through routine vaccination\*. WHO data from 2013 show that coverage rates in 22 EU/EEA Member States are below this target, while pockets of susceptible individuals still exist throughout the EU even in countries with high vaccine coverage. Measures implemented in the Member States must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

**Figure 1. Number of measles cases in 2013 and 2014 and number of countries reporting in 2014, by month, EU/EEA**



Note: All countries reported data for all months during 2013

**Figure 2. Number of measles cases by month, EU/EEA countries, January 2006–December 2014**



Note: During the period 2006–2014, 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.

\* 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, January–December 2014, EU/EEA countries**

Country	2014												Total cases	Cases per million	Total lab-positive cases
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec			
Austria	33	11	8	5	8	17	4	0	0	3	6	17	112	13.3	83
Belgium	2	7	6	10	28	1	0	1	4	3	4	4	70	6.3	46
Bulgaria	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0
Croatia	0	1	0	1	0	0	0	0	0	0	1	11	14	3.3	11
Cyprus	0	0	4	6	0	0	0	0	0	0	0	0	10	11.6	8
Czech Republic	0	2	34	62	29	57	22	12	4	0	0	0	222	21.1	220
Denmark	0	5	8	10	1	1	1	3	0	0	0	0	29	5.2	24
Estonia	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0
Finland	2	0	0	0	0	1	0	0	0	0	0	0	3	0.6	0
France	40	35	25	33	45	43	15	9	5	3	7	7	267	4.1	135
Germany	22	25	37	45	22	33	17	30	26	36	35	118	446	5.4	339
Greece	0	0	0	0	0	0	0	0	0	0	1	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	1	0	0	0	0	0	0	0	0	0	1	3.1	1
Ireland	2	6	15	11	1	0	1	0	2	1	1	2	42	9.1	18
Italy	319	203	302	268	193	92	92	74	46	46	26	15	1 676	28.1	960
Latvia	0	0	0	25	9	0	2	0	0	0	0	0	36	17.8	35
Lithuania	0	0	2	1	2	5	1	0	0	0	0	0	11	3.7	11
Luxembourg	1	0	0	0	1	0	0	0	0	0	0	0	2	3.7	1
Malta	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0
Netherlands	46	24	42	21	5	1	1	2	2	0	0	0	144	8.6	108
Norway	0	0	0	2	0	1	0	0	0	0	0	0	3	0.6	3
Poland	15	27	26	19	7	2	7	2	1	2	0	2	110	2.9	87
Portugal	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0
Romania	25	17	5	1	5	0	0	0	0	0	0	0	53	2.6	44
Slovakia	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0
Slovenia	0	0	0	0	1	0	1	0	0	0	28	22	52	25.3	50
Spain	10	26	77	27	8	1	1	1	1	0	0	1	153	3.3	146
Sweden	2	7	0	0	3	2	4	1	1	4	1	1	26	2.7	26
United Kingdom	39	27	26	12	2	3	17	2	1	2	2	0	133	2.1	132
<b>Total</b>	<b>558</b>	<b>423</b>	<b>618</b>	<b>559</b>	<b>370</b>	<b>260</b>	<b>186</b>	<b>137</b>	<b>93</b>	<b>100</b>	<b>112</b>	<b>200</b>	<b>3 616</b>	<b>7.1</b>	<b>2 489</b>

Lichtenstein does not report.

Countries with a notification rate  $\geq 1$  per million population are highlighted in green. The target for monitoring 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).

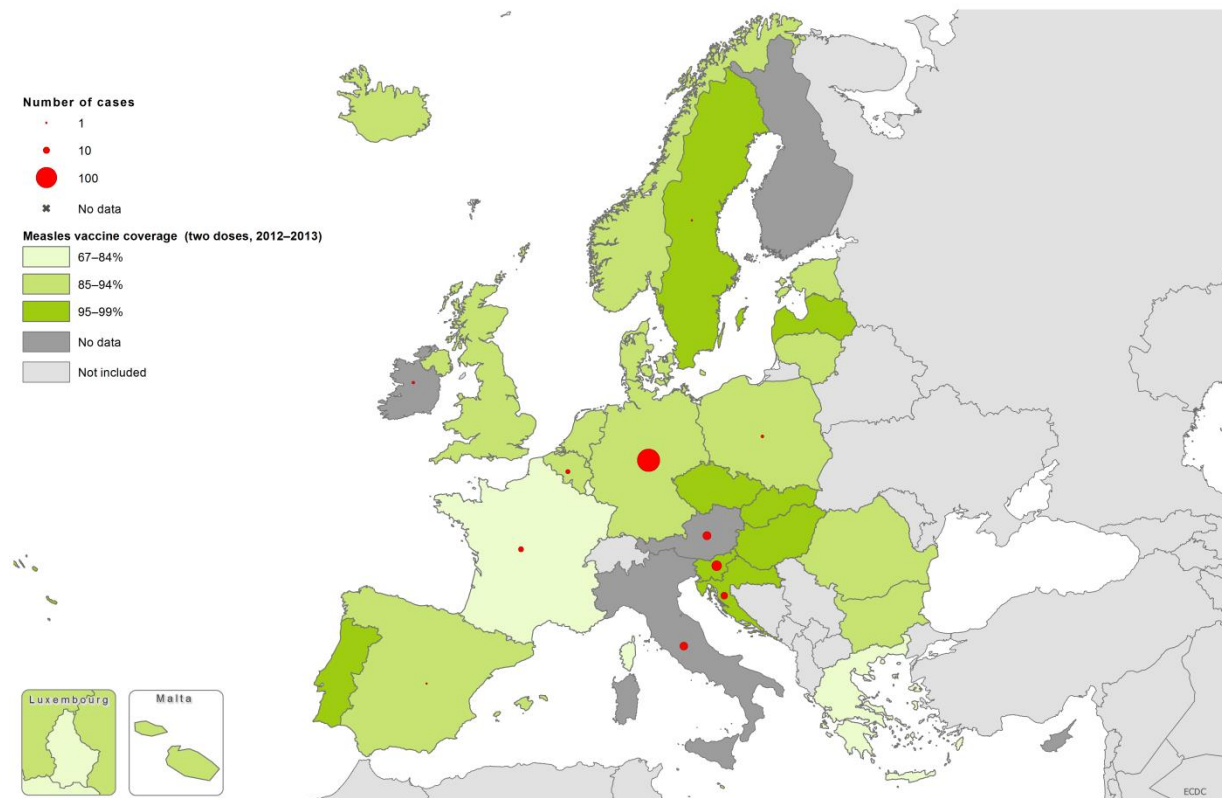
Achieving this target is consistent with progress towards elimination but does not define elimination or confirm that it has been achieved. In the table, all cases (endemic, imported, import-related) are included for the calculation of the notification rate.

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:

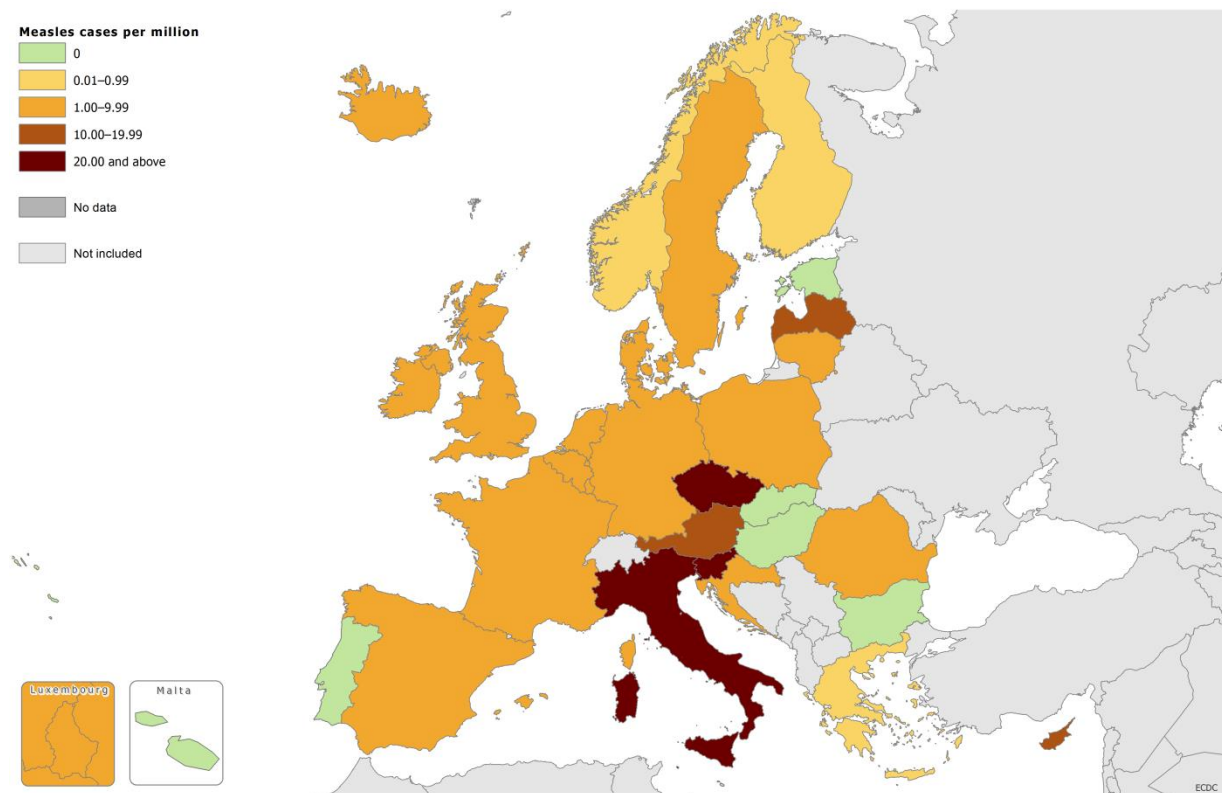
[http://www.ecdc.europa.eu/en/healthtopics/measles/epidemiological\\_data/pages/annual\\_epidemiological\\_reports.aspx](http://www.ecdc.europa.eu/en/healthtopics/measles/epidemiological_data/pages/annual_epidemiological_reports.aspx)

**Figure 3. Number of measles cases by country, December 2014 (N=200), and vaccine coverage (two doses, 2013–2012, WHO\*), EU/EEA countries**



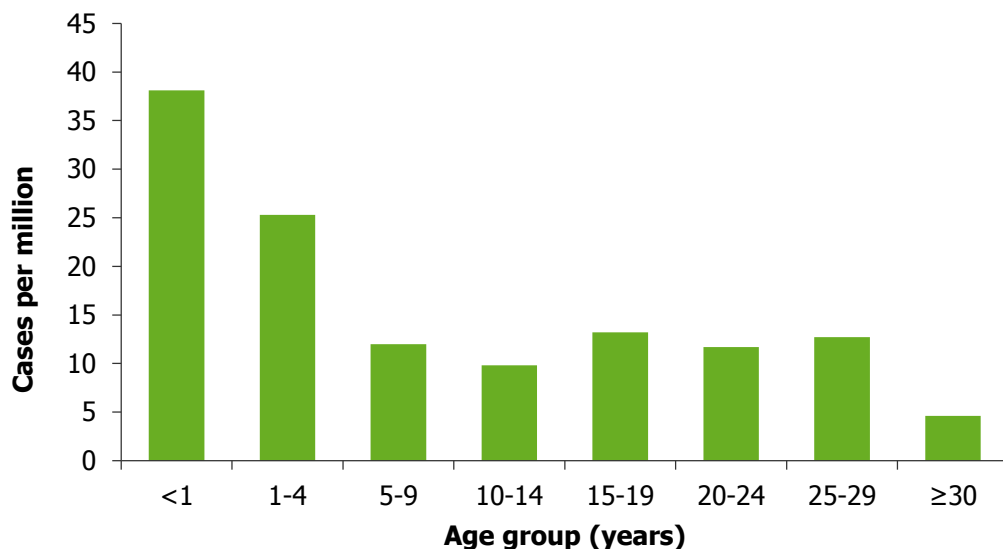
\* Coverage figures (%) are official national figures reported via the annual WHO/UNICEF Joint Reporting Form. See notes at the end of this report for further explanations.

**Figure 4. Measles notification rate (cases per million) by country, January–December 2014, EU/EEA countries (n=3 616)**

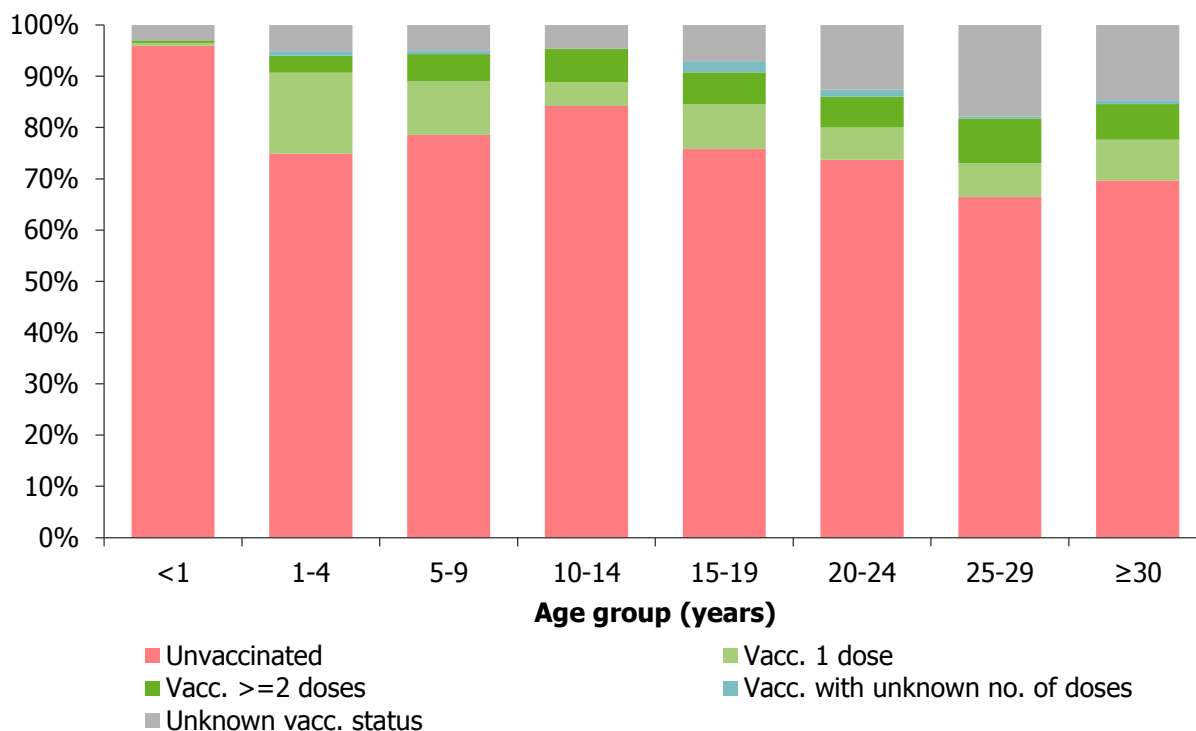


For interactive maps relating to measles see <http://emmageocase.ecdc.europa.eu/atlas/measles>

**Figure 5. Measles notification rate (cases per million) by age group, January–December 2014, EU/EEA countries (n=3 615 cases with known age)**

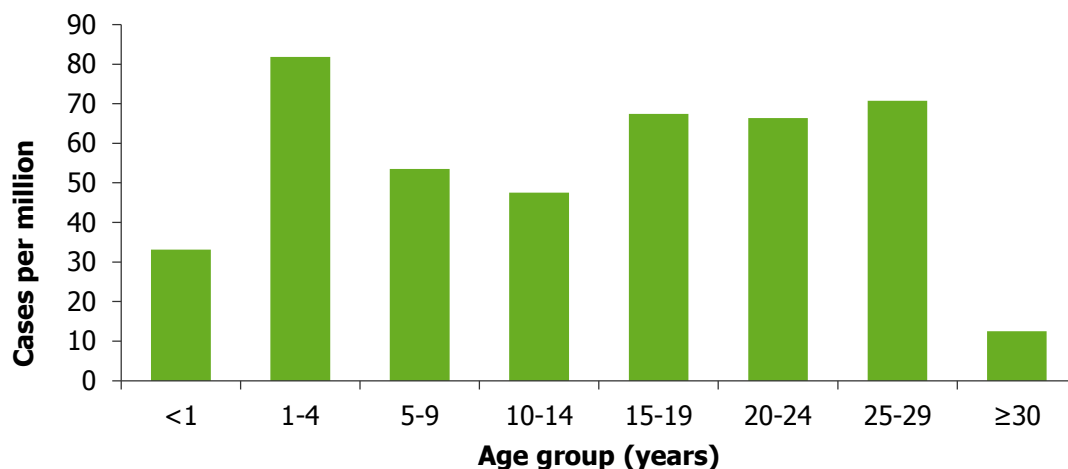


**Figure 6. Percentage distribution of vaccination status among measles cases by age group, January–December 2014, EU/EEA countries (n=3 615, cases with known age)**

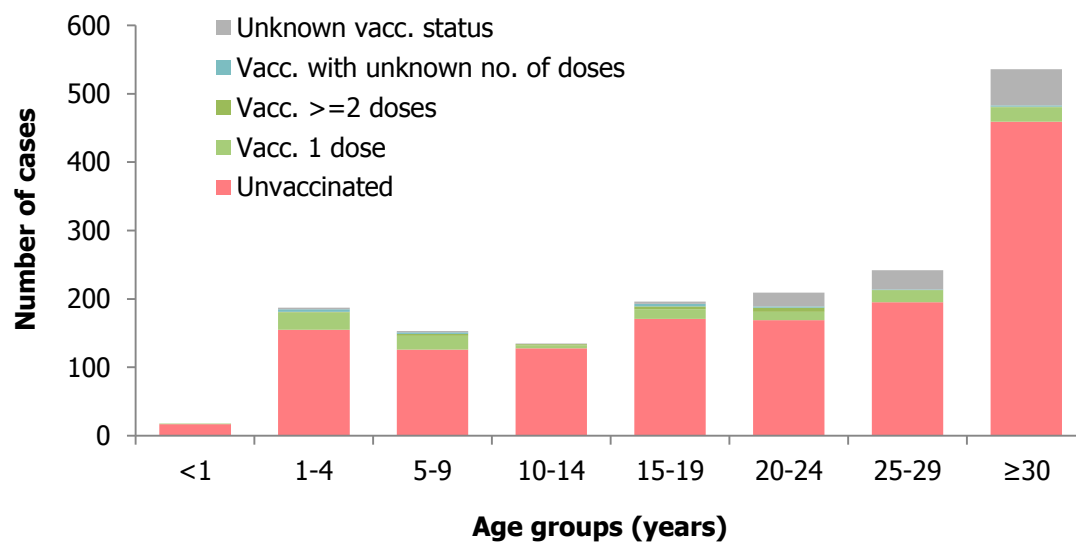


**Figure 7. Notification rate of measles cases and vaccination status for the two countries (Italy, Germany) with the highest proportion of cases, by age group, January–December 2014**

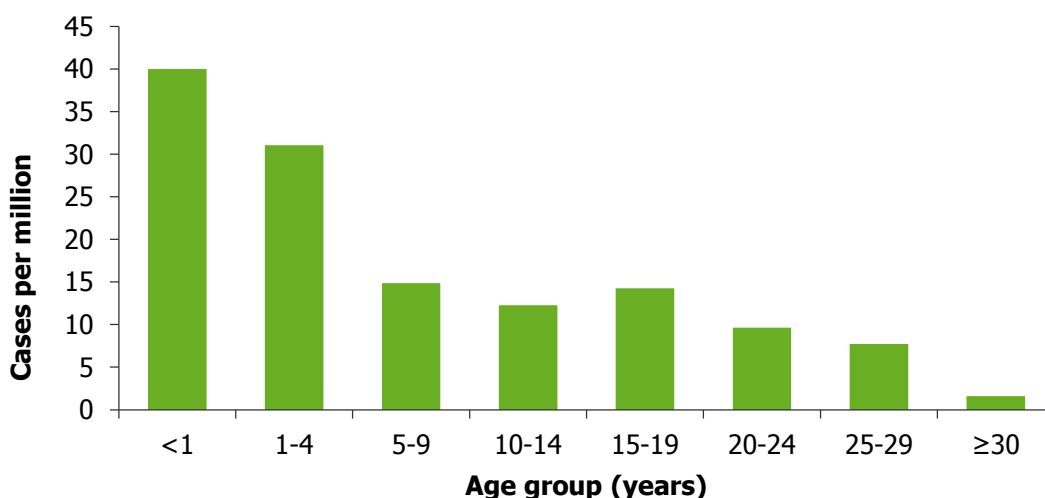
**Figure 7a. Measles notification rate (cases per million) by age group, Italy, January–December 2014**



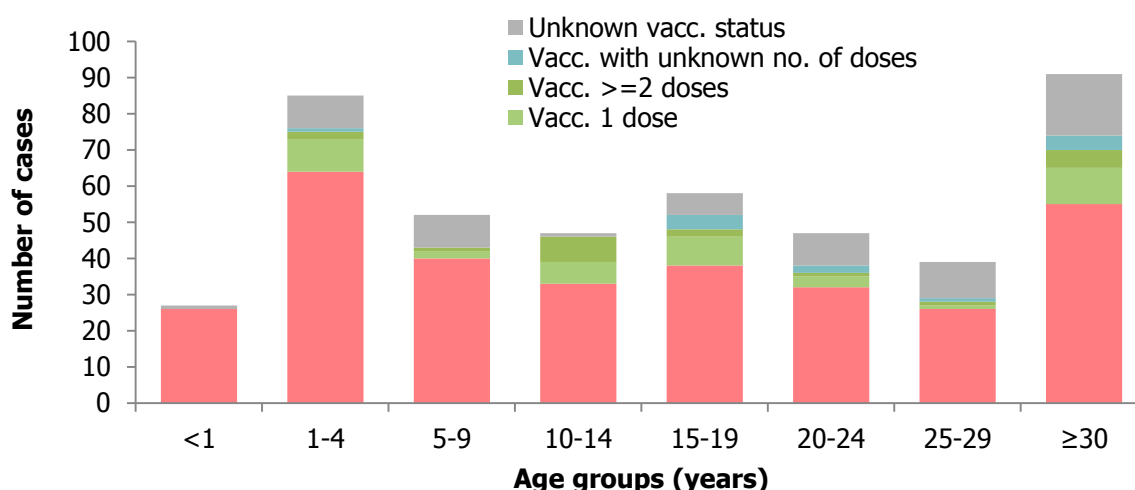
**Figure 7b. Number of measles cases by age group and vaccination status, Italy, January–December 2014**



**Figure 7c. Measles notification rate (cases per million) by age group, Germany, January–December 2014**



**Figure 7d. Number of measles cases by age group and vaccination status, Germany, January–December 2014**



## Epidemic intelligence

### Updates since the last report<sup>†</sup>: EU Member States

#### Slovenia

An outbreak of measles among visitors of an international dog show occurred in November 2014. As of 31 December, the National Institute of Public Health (NIJZ) identified 44 cases of measles (23 cases among visitors and 21 secondary and tertiary cases). Thirty-nine cases were adults (27 to 56 years old) and 12 of them were vaccinated with two doses. Five were unvaccinated children. Thanks to high vaccination coverage (95.3% in birth cohort 2011) wider transmission has not occurred in Slovenia. Measles virus from seven cases has been sequenced and genotype D8 has been identified in all seven. Exactly matching sequences of D8 genotype measles virus were found also in Austria, Bosnia and Herzegovina, Greece, Russia, and the United Kingdom.

In addition, the NIJZ was informed of six cases of measles, connected to an introduction from Bosnia and Herzegovina and not associated with the dog show.

<sup>†</sup> <http://www.ecdc.europa.eu/en/publications/Publications/Measles-rubella-quarterly-Dec2014.pdf>



### **Germany**

There is a large ongoing measles outbreak in Berlin. As of 4 February 2015, RKI reports 412 cases. The outbreak that started in October 2014 initially affected asylum seekers from Bosnia and Herzegovina and Serbia but has now spread to the general population. Twenty-eight percent of the cases needed hospitalisation. There have been no deaths reported. D8 genotype was identified in 15 of the cases.

## **Updates since the last report: Rest of the world**

### **Bosnia and Herzegovina**

A large outbreak is reported in Bosnia-Herzegovina that started in February 2014. By the end of the year there were 3 426 reported measles cases. The largest proportion of patients was between 15 and 19 years of age. Most cases were unvaccinated or incompletely vaccinated.

In addition, during 2014, there were 1 008 measles cases notified in Republika Srpska, 43 of which were laboratory confirmed. Most of the cases belonged to the age group 20 to 25 years.

### **Serbia**

Since November 2014 and as of 26 January 2015, 123 cases of measles have been reported in Serbia in several outbreaks affecting numerous areas of the country.

### **Kyrgyzstan**

According to media reports, Kyrgyzstan has been experiencing a measles outbreak with 2 598 suspected cases since December 2014. A total of 1 566 (60.2%) patients were hospitalised.

### **United States**

There is a large ongoing measles outbreak in California that began after several people were exposed to measles while visiting Disneyland between 17 and 20 December 2014. No source has been identified for this outbreak. Measles genotype was identified as B3, which also caused a large outbreak in the Philippines in 2014. The confirmed cases include five Disney employees. Patients range in age from seven months to 70 years. Twenty-five percent of the patients in California needed hospitalisation.

A total of 121 measles cases was reported in the United States of America between 1 January and 6 February 2015 (17 states and Washington, DC). Most of these cases (103: 85 %) are part of the outbreak linked to Disneyland in California. In 2014, 644 cases of measles were reported in the US, which is the highest number of cases since 2000 when measles was declared eliminated in the US.

### **Canada**

Canada is currently investigating two separate measles outbreaks. As of 10 February 2015, Quebec reported eight suspected measles cases since the beginning of 2015. The cases were linked to the current outbreak in California and occurred in an unvaccinated family. A second outbreak in Toronto involving four laboratory-confirmed cases of measles (two children under two years of age and two adults from different families).

### **China**

Media report a recent outbreak in Beijing with 91 cases as of 26 January 2015.

### **Sudan**

UNICEF reports an outbreak of measles in the Gedarif and Kassala states in eastern Sudan. As of 15 January 2015, twelve areas have been affected, with a total of 593 confirmed cases. The majority of cases are in children under five years of age. A week-long vaccination campaign was launched on 19 January.

### **Papua New Guinea**

Media report an outbreak in Papua New Guinea's Chimbu province, with six fatalities and an unknown number of cases.

# Rubella

## Enhanced surveillance data

The rubella surveillance data were retrieved from The European Surveillance System (TESSy) on 26 January 2015. The analysis covered the 12-month period from January–December 2014.

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, 26 reported data for the entire 12-month period. Italy did not report for the entire period and Austria did not report data for the final two months of 2014 (Figure 8, Table 2).

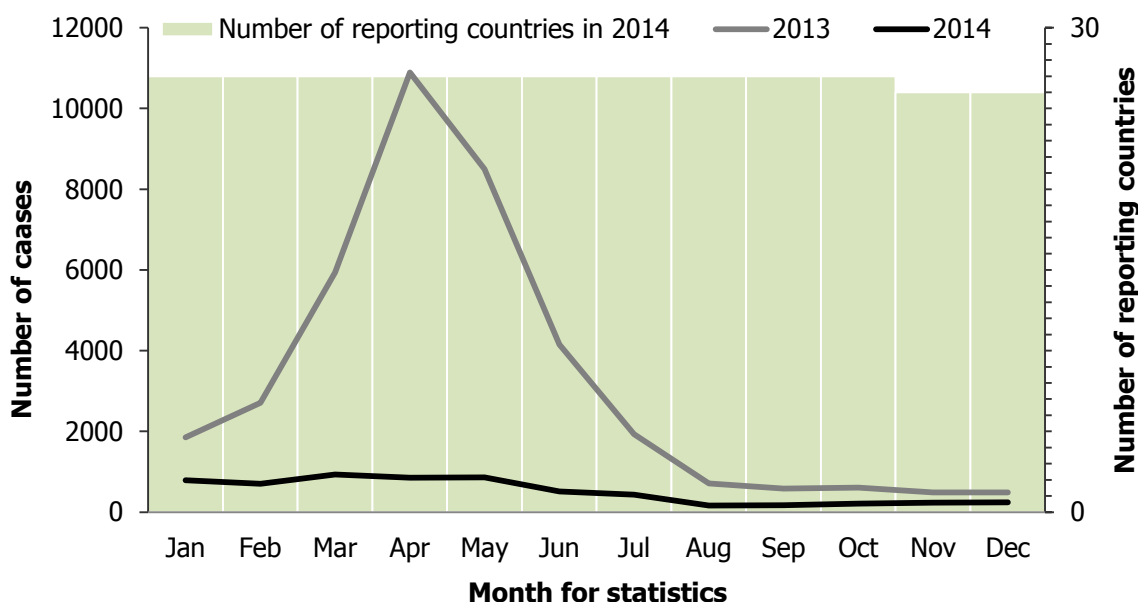
During the period January–December 2014, 6 110 cases of rubella were reported. Just over 1.5% (n=99) of the cases were reported as laboratory confirmed (by serology, virus detection or isolation) (Table 2). The number of cases reported by country in December 2014 and the notification rates for the entire 12-month period are shown in Figures 9 and 10. The rubella notification rate was less than one case per million population in 22 of the 26 countries which reported consistently over the 12-month period, including 13 countries reporting zero cases.

The highest notification rate was observed in cases between five and nine years of age (91.0 cases per million population) and children between one and four years (81.3) (Figure 11).

Poland accounted for 96.5% (n= 5 899) 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=1710) and 1–4-year-olds (n=1213). Among 15–19-year-olds, the male–female ratio was greater than 13:1; among 20–24-year-olds it was greater than 9:1 (Table 3). The high proportion of cases observed among males aged 15–24 years compared to 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 2 240 cases (38.0%) reported in 2014 in Poland were unvaccinated, 2 345 (39.8%) cases were vaccinated with one dose, 381 (6.5%) cases had received two or more doses, and 933 (15.8%) cases had an unknown vaccination status. However, these figures need to be interpreted with caution as only 34 cases were reported with a positive laboratory test.

**Figure 8. Number of rubella cases in 2013 and 2014 and number of countries reporting in 2014, 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 Austria and Italy did not report data for all months in 2014. Germany reported data on rubella for the first time in December 2013.*

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

Country	2014												Total cases	Cases per million	Total lab-positive cases
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec			
Austria	1	1	0	0	1	3	1	0	2	0	NR	NR	9	1.1	9
Belgium	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	-	-
Bulgaria	1	5	0	0	0	1	0	0	0	0	0	0	7	1.0	1
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	1	0	0	0	0	0	0	0	0	0	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	12	19	13	18	22	16	20	5	8	8	8	3	152	1.9	26
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	1	2	1	0	0	0	0	5	1.1	1
Italy	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	-	-
Latvia	0	0	0	0	0	0	1	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	1	0	0	0	0	1	0	0	0	0	0	2	0.1	2
Norway	1	2	0	0	0	0	0	0	0	0	0	0	3	0.6	2
Poland	770	672	913	837	822	493	410	157	159	201	226	239	5 899	153.1	34
Portugal	0	0	0	1	0	0	0	2	1	0	3	0	7	0.7	2
Romania	0	0	0	0	13	1	1	0	2	0	0	0	17	0.8	15
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	1	2	0	0	0	0	1	1	0	0	0	5	0.1	3
Sweden	0	0	1	0	0	0	0	0	0	0	0	0	1	0.1	1
United Kingdom	0	0	0	0	0	1	0	0	0	0	0	0	1	0.0	1
<b>Total</b>	<b>786</b>	<b>701</b>	<b>929</b>	<b>856</b>	<b>859</b>	<b>516</b>	<b>436</b>	<b>166</b>	<b>173</b>	<b>209</b>	<b>237</b>	<b>242</b>	<b>6 110</b>	<b>**</b>	<b>99</b>

NR: Data not reported. Lichtenstein does not report.

Countries with a notification rate  $\geq 1$  per million population are highlighted in green. The target for monitoring 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.

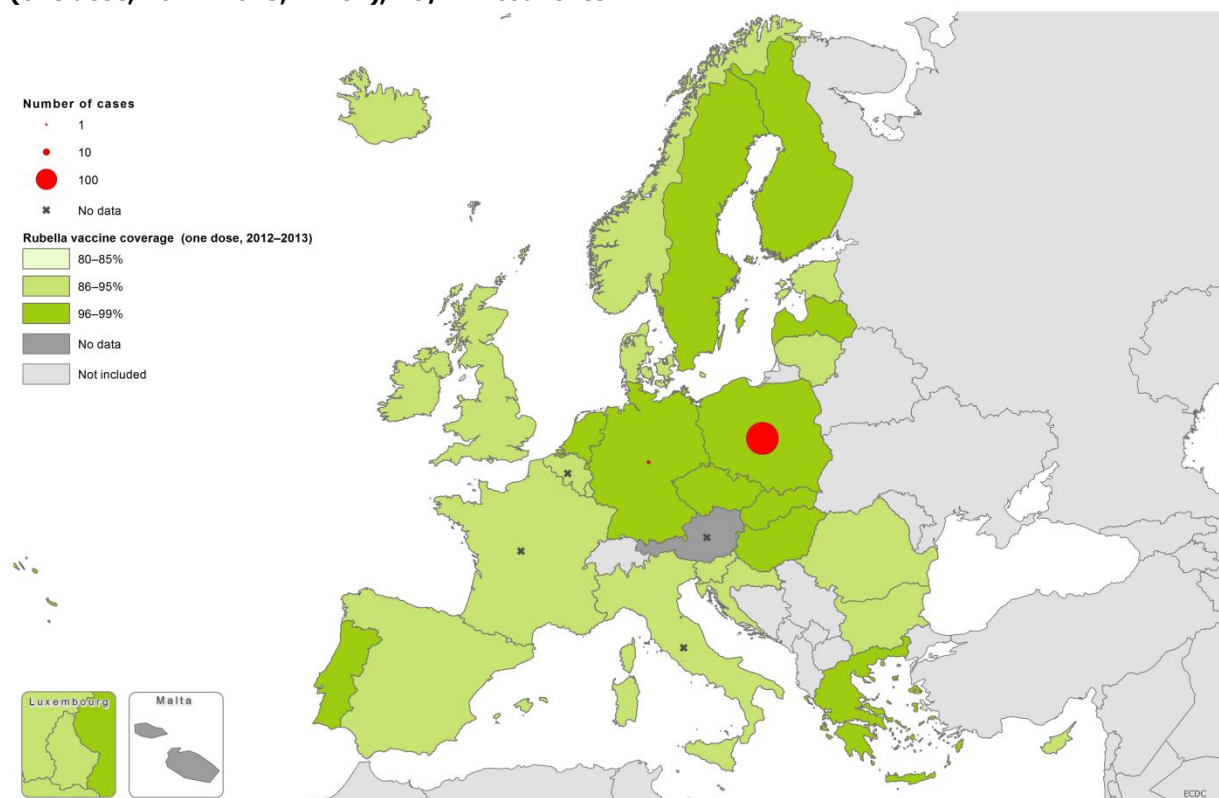
\* The national surveillance system for rubella in Denmark currently only captures rubella infections during pregnancy; therefore the true incidence of rubella in the Danish population will be underestimated.

\*\* 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:

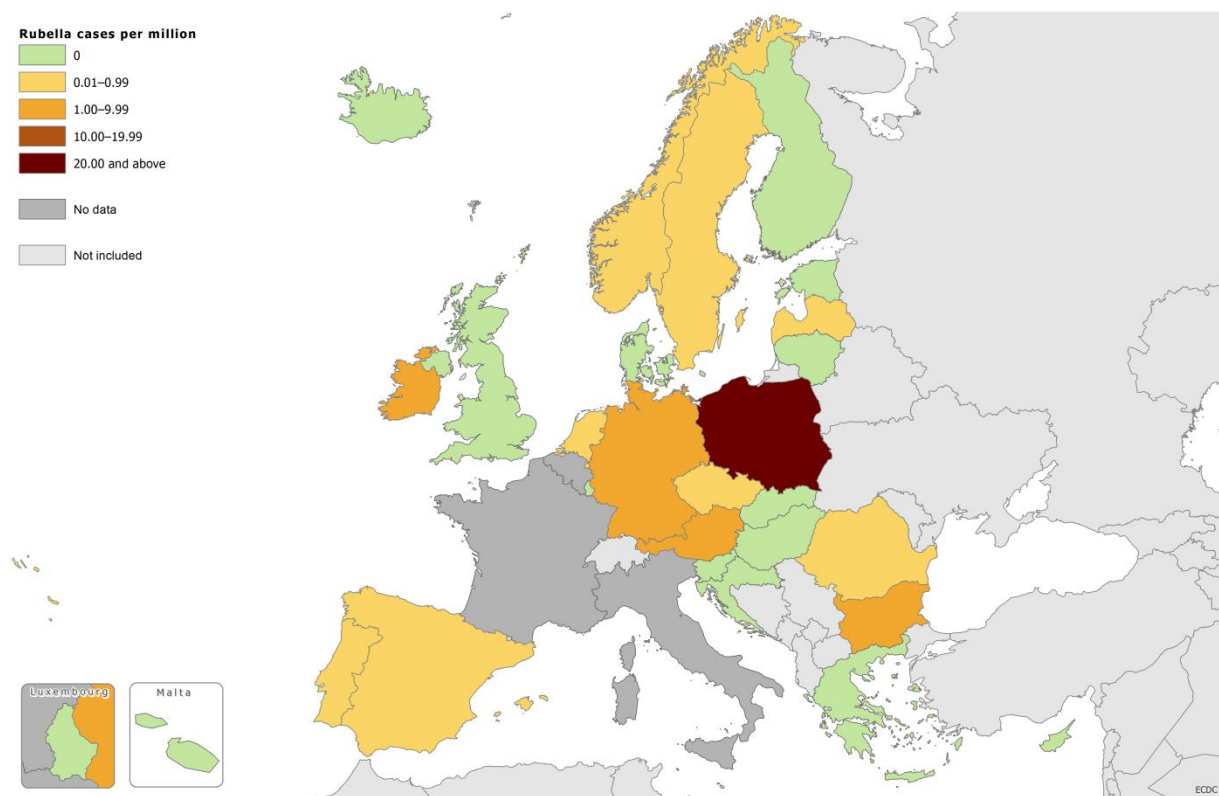
[http://www.ecdc.europa.eu/en/healthtopics/rubella/epidemiological-data/pages/epidemiological\\_data.aspx](http://www.ecdc.europa.eu/en/healthtopics/rubella/epidemiological-data/pages/epidemiological_data.aspx)

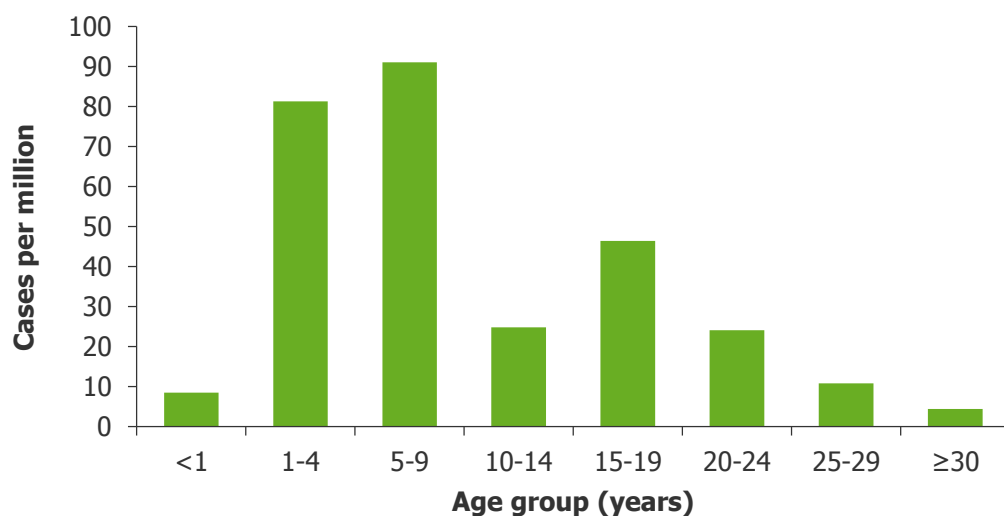
**Figure 9. Number of rubella cases by country, December 2014 (n=242), and rubella vaccine coverage (one dose, 2012–2013, WHO\*), EU/EEA countries**



\* 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, January–December 2014, EU/EEA countries (n=6 110)**



**Figure 11. Rubella notification rate (cases per million) by age group, January–December 2014, EU/EEA countries (n=6 110 cases with known age)****Table 3. Number of rubella cases by age group and gender, Poland, January–December 2014**

Age group (years)	Males	Females	Total number of cases
< 1	176	139	315
1–4	666	547	1 213
5–9	906	804	1 710
10–14	290	168	458
15–19	872	67	939
20–24	507	54	561
25–29	160	99	259
≥ 30	148	296	444
<b>Total</b>	<b>3 378</b>	<b>2 174</b>	<b>5 899</b>

## Epidemic intelligence: Member States

No new outbreaks detected since the last monthly update<sup>‡</sup>.

## Epidemic intelligence Rest of the world

### Vietnam

According to media reports, there is an ongoing outbreak of rubella at a furniture company in Binh Duong Province, near Ho Chi Minh City. A total of 138 employees of the company showed symptoms of rubella. As of 23 January 2015, 29 of them have been tested positive for the virus.

## 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 atlas to monitor progress toward elimination, ECDC: <http://emmageocase.ecdc.europa.eu/atlas/measles>

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>

<sup>‡</sup> <http://www.ecdc.europa.eu/en/publications/Publications/Measles-rubella-quarterly-Dec2014.pdf>

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](http://apps.who.int/immunization_monitoring/globalsummary/timeseries/tscoveragerubella1.html) and [http://apps.who.int/immunization\\_monitoring/globalsummary/timeseries/tscoveragemcv2.html](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 (2013).