

## SURVEILLANCE REPORT

# Measles and rubella monitoring

February 2013

Measles and rubella are targeted for elimination in Europe by 2015. ECDC closely monitors progress towards interruption of endemic transmission of both diseases through enhanced surveillance and epidemic intelligence. Measles and rubella vaccinations are routinely delivered in the form of measles-mumps-rubella (MMR) vaccine in the childhood immunisations programmes in Europe, and the first of the two recommended doses is normally given during the second year of life. Elimination of measles requires a sustained uptake above 95%, with two doses of MMR vaccine across all countries and populations groups.

### Main developments

#### Measles

- The 29 contributing EU and EEA countries reported 8 230 cases of measles during the last 12-month period (January to December 2012). Luxembourg and Malta did not report for November and December, and Bulgaria and Iceland did not report for December.
- France, Italy, Romania, Spain and the United Kingdom accounted for 94% of the cases in 2012.
- Twelve countries met the elimination target of less than one case of measles per million population during the last 12 months.
- The number of reported cases in the EU/EEA was substantially lower in 2012 than in 2011, but the overall notification rate (16.4 cases per million population) continues to exceed the elimination target of less than one case per million.
- Of the 7 754 cases for which vaccination status was available, 83% were unvaccinated. In the target group for routine childhood MMR vaccination (1–4-year-olds), 77% of the cases were unvaccinated.
- No measles-related deaths were reported in 2012 but seven cases were complicated by acute measles encephalitis.
- No new large outbreaks have been reported since the previous report.

#### Rubella

- The 26 EU and EEA countries contributing to enhanced rubella surveillance reported 27 276 cases during the last 12-month period (January to December 2012).
- Bulgaria, Iceland and Romania did not report for December, Luxembourg and Malta did not report for November and December, and Italy did not report for the entire period from January to December.
- Poland and Romania accounted for 99% of all reported rubella cases in the 12-month period.

# Measles

## Surveillance data

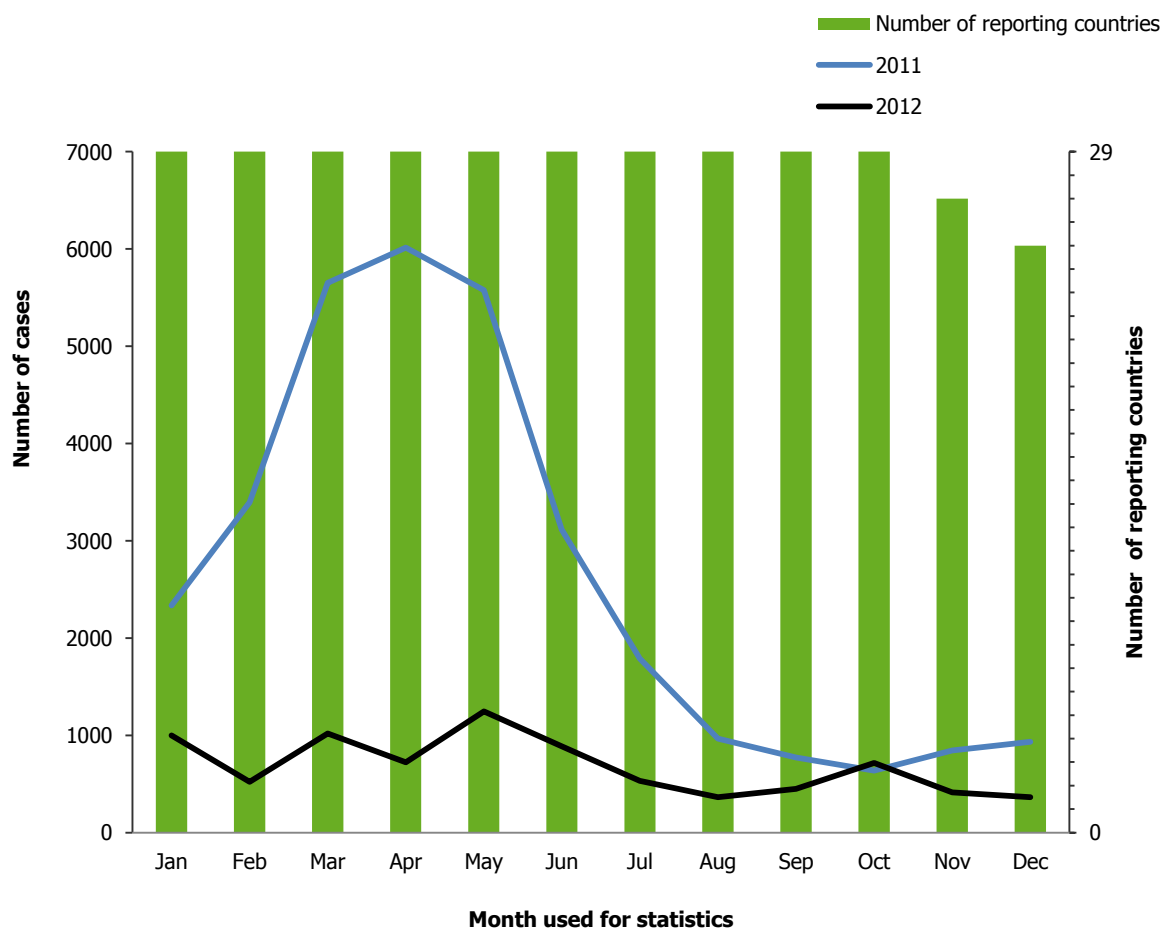
Data for enhanced measles surveillance were retrieved from the European Surveillance System (TESSy) on 31 January 2013, and the analysis covers the 12-month period from January to December 2012. All twenty-nine countries reported case-based data for the period. November and December data were missing from Luxembourg and Malta, and December data were missing from Bulgaria and Iceland.

The number of cases and notification rates for the past 12 months are shown in Table 1. Reported cases in 2012 are much less than for the same period in 2011, and the usual increase at EU/EEA level during the peak transmission season for measles from February to June (Figure 1) was not evident. The highest notification rate was among infants under one year of age (230.3 cases per million population), followed by children aged between one and four years (102.5 cases per million population) (Figure 2).

Vaccination status was known for 7 756 (94%) of the 8 230 reported cases and of these 83% (6 408 cases) were unvaccinated, 12% (962) had received one dose of measles vaccine, 5% (370) had received two or more doses and for 0.2% (16) the number of doses was unknown. The proportion of unvaccinated cases was high across all age groups (Figure 3). Among the 1–4-year-olds, the group targeted by routine childhood vaccination programmes, 77% of the cases were unvaccinated.

Over the last 12 months, seven cases were complicated by acute measles encephalitis. No measles-related deaths were reported.

**Figure 1. Number of measles cases (2011 and 2012) and number of reporting EU/EEA countries (2012), by month**



**Table 1. Number of measles cases by month and notifications rates (cases per million), January - December 2012, EU/EEA countries**

Country	2012												Total cases	Cases per million
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec		
Austria	3	1	0	2	2	4	1	3	1	2	0	0	19	2.3
Belgium	6	6	3	9	4	9	5	0	1	0	0	0	43	3.9
Bulgaria	0	0	0	0	0	0	0	1	0	0	0	NR	1	0.1
Cyprus	0	1	0	0	0	0	0	0	0	0	0	0	1	1.2
Czech Republic	3	2	0	2	7	4	1	2	1	0	0	0	22	2.1
Denmark	1	0	0	0	1	0	0	0	0	0	0	0	2	0.4
Estonia	0	0	0	2	1	0	0	0	0	0	0	1	4	3.0
Finland	1	0	0	3	0	0	0	0	1	0	0	0	5	0.9
France	106	123	140	110	103	92	75	31	10	25	27	17	859	13.2
Germany	4	18	7	18	56	17	19	11	3	3	5	6	167	2.0
Greece	0	0	0	0	1	1	1	0	0	0	0	0	3	0.3
Hungary	0	1	0	1	0	0	0	0	0	0	0	0	2	0.2
Iceland	0	0	0	0	0	0	0	0	0	0	0	NR	0	0.0
Ireland	2	4	4	2	53	18	3	2	9	9	1	0	107	23.9
Italy	63	122	89	100	105	59	28	6	13	74	10	13	682	11.2
Latvia	0	2	1	0	0	0	0	0	0	0	0	0	3	1.3
Lithuania	0	0	0	2	0	0	0	0	0	0	0	0	2	0.6
Luxembourg	0	0	1	0	0	1	0	0	0	0	NR	NR	2	3.9
Malta	0	0	0	0	0	0	0	0	0	0	NR	NR	0	0.0
Netherlands	0	0	1	4	0	1	2	2	0	0	0	0	10	0.6
Norway	0	0	0	1	0	0	0	2	1	0	0	0	4	0.8
Poland	1	1	1	13	11	9	4	6	1	2	4	8	61	1.6
Portugal	1	0	0	1	4	0	0	1	0	0	0	0	7	0.7
Romania	729	110	647	317	620	338	157	77	182	371	94	201	3843	179.5
Slovakia	0	0	0	0	0	0	0	1	0	0	0	0	1	0.2
Slovenia	1	0	1	0	0	0	0	0	0	0	0	0	2	1.0
Spain	60	69	89	65	59	55	30	7	4	8	0	0	446	9.7
Sweden	2	14	4	4	1	0	1	1	1	1	0	1	30	3.2
United Kingdom	17	47	31	66	216	278	206	210	221	222	273	115	1902	30.4
<b>Total</b>	<b>1000</b>	<b>521</b>	<b>1019</b>	<b>722</b>	<b>1244</b>	<b>886</b>	<b>533</b>	<b>363</b>	<b>449</b>	<b>717</b>	<b>414</b>	<b>362</b>	<b>8230</b>	<b>16.2</b>

NR: data not reported.

Notification rates were calculated using the most recent population estimates available from Eurostat (2011).

Countries with a notification rate  $\geq 1$  per million population are highlighted in green. The target to monitor progress toward elimination is achievement of an incidence of less than one confirmed case per million population per year, excluding cases confirmed as imported.

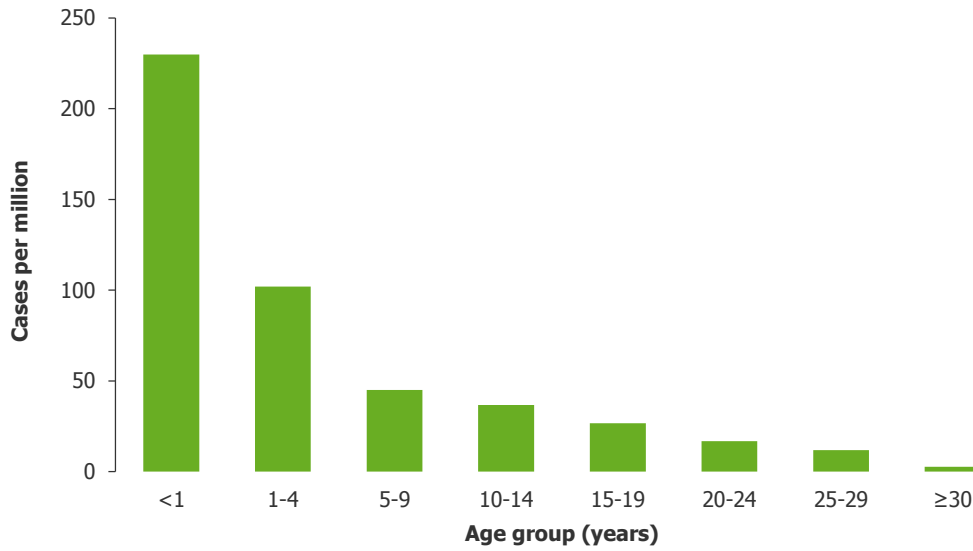
For countries that did not report data for all 12 months, notification rates might be underestimated.

All confirmed, probable, possible or unknown cases as defined by the EU 2008 case definitions are included.

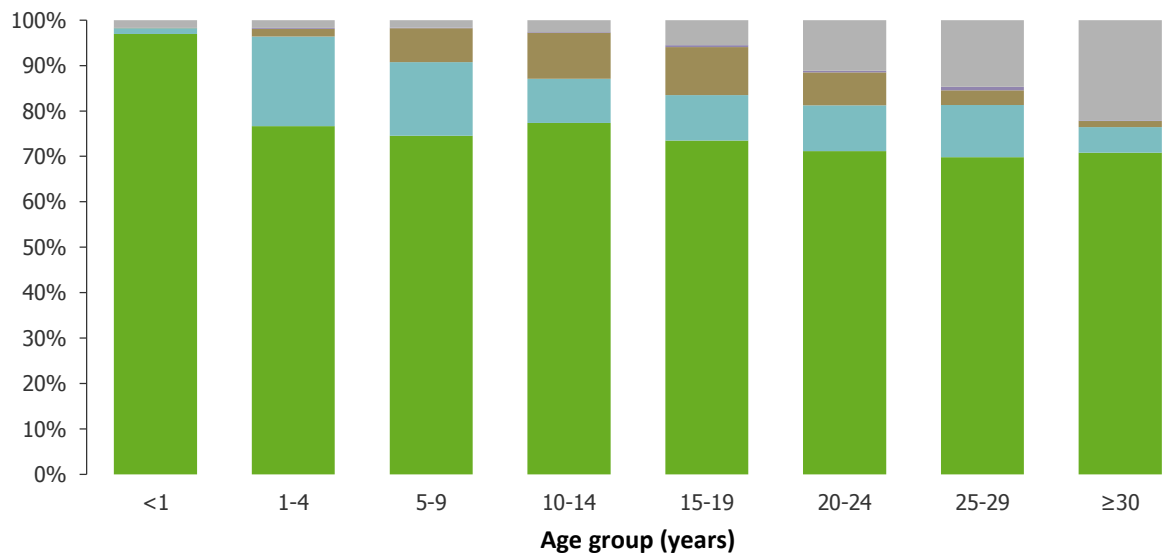
For tables relating to the number of measles cases in previous years, see:

[http://ecdc.europa.eu/EN/HEALTHTOPICS/MEASLES/EPIDEMIOLOGICAL\\_DATA/Pages/annual\\_epidemiological\\_reports.aspx](http://ecdc.europa.eu/EN/HEALTHTOPICS/MEASLES/EPIDEMIOLOGICAL_DATA/Pages/annual_epidemiological_reports.aspx)

**Figure 2. Measles notification rates (cases per million) by age group, January – December 2012, EU/EEA countries (n=8 200 cases with known age)**

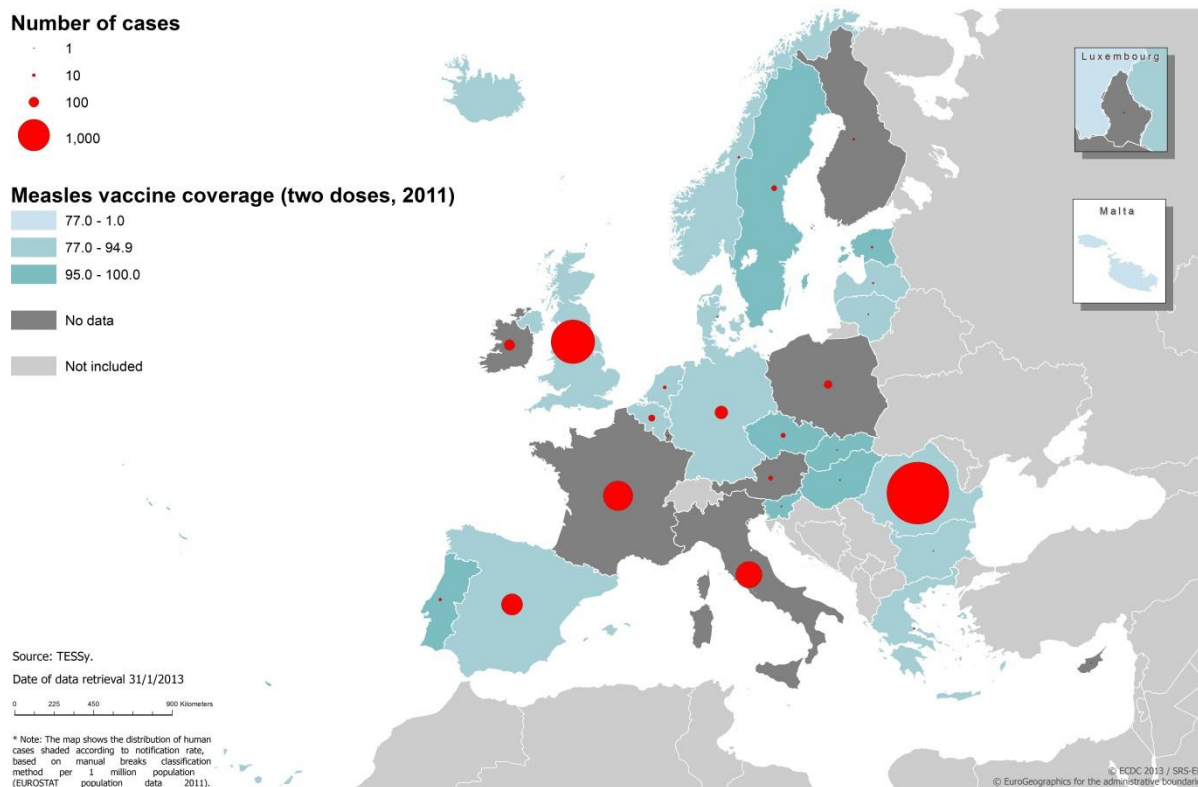


**Figure 3. Proportion of vaccination status among measles cases by age group, January – December 2012, EU/EEA countries (n=8 200 cases with known age)**



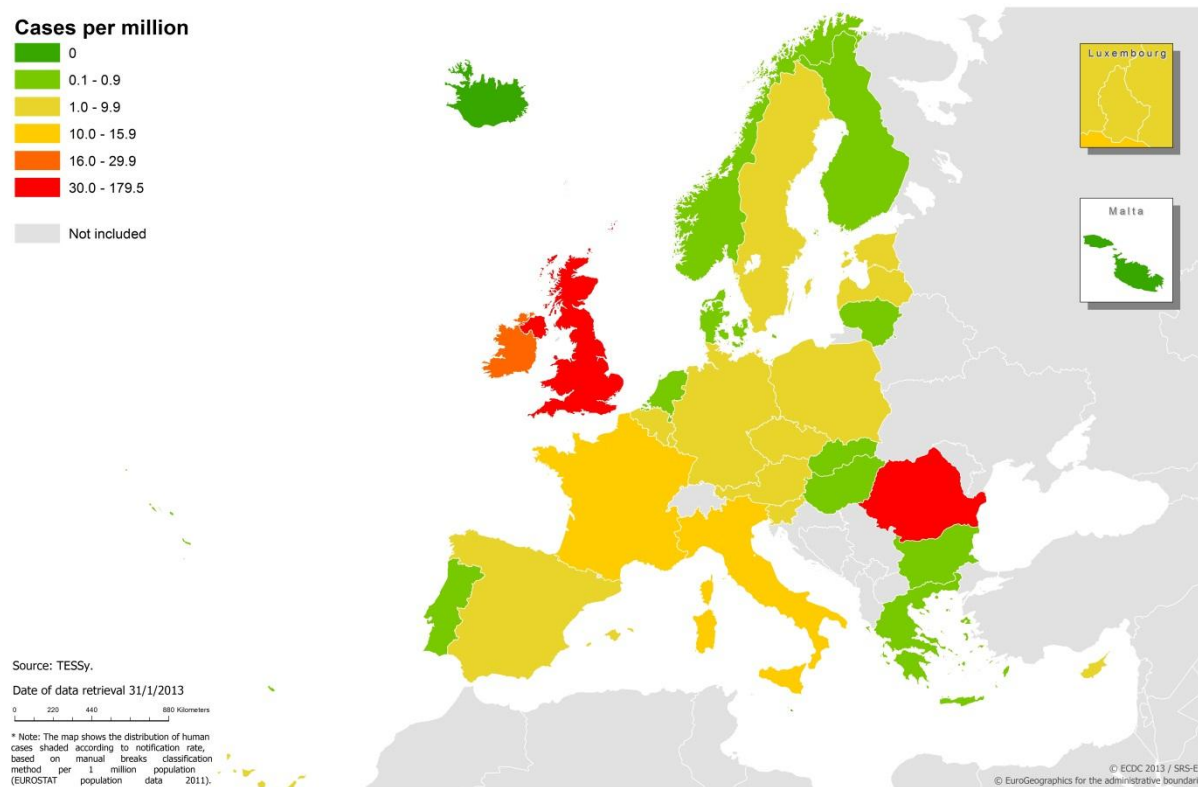
- Unvaccinated
- Vacc. >=2 doses
- Unknown vacc. status
- Vacc. 1 dose
- Vacc. with unknown no. of doses

**Figure 4. Number of measles cases by country, January – December 2012, EU/EEA countries (n=8 230), and two-dose measles vaccine coverage\* (2011 CISID), EU/EEA countries**



\* Coverage figures (%) are official national figures reported via the annual WHO/UNICEF Joint Reporting Form and WHO Regional Office for Europe reports.

**Figure 5. Measles notification rates (cases per million) by country, January – December 2012, EU/EEA countries (n=8 230)**



For maps relating to measles cases and notification rates in 2011, see:  
[http://ecdc.europa.eu/en/activities/surveillance/euvac/data/Pages/measles\\_maps.aspx](http://ecdc.europa.eu/en/activities/surveillance/euvac/data/Pages/measles_maps.aspx)

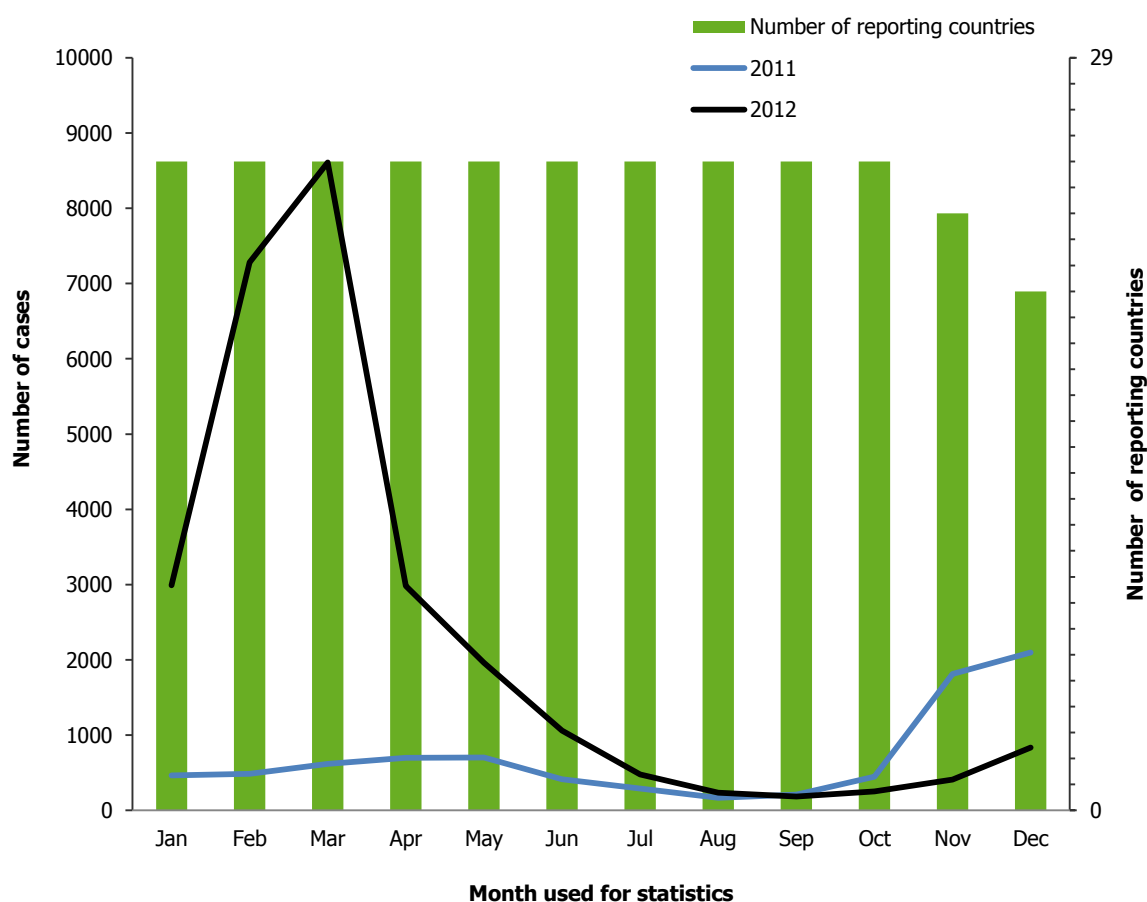
# Rubella

## Enhanced surveillance data

Data for enhanced rubella surveillance were retrieved from the European Surveillance System (TESSy) on 31 January 2013. The analysis covers the 12-month period from January to December 2012. Of the 26 contributing countries, 20 reported data for the entire period. Bulgaria, Iceland and Romania did not report for December, Luxembourg and Malta did not report for November and December, and Italy did not report at all during the period. Belgium, France and Germany do not operate rubella surveillance systems with national coverage and do not contribute to the enhanced surveillance system. Number of cases and notification rates in the past 12 months are shown in Table 2. Poland and Romania accounted for 99% of the reported cases.

Reported cases in 2012 are higher than for the same period in 2011 (Figure 6). The highest notification rate (969.2 cases per million population) was among adolescents aged 15–19 years (Figure 7). Sixty percent of cases aged 15–44 years were females.

**Figure 6. Number of rubella cases (2011 and 2012) and number of reporting EU/EEA countries (2012), by month**



*Belgium, France, and Germany do not have rubella surveillance with national coverage.*

**Table 2. Number of rubella cases by month and notifications rates (cases per million), January – December 2012, EU/EEA countries**

Country	2012												Total cases	Cases per million
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec		
Austria	2	1	0	1	2	0	0	3	0	0	0	0	9	1.1
Belgium	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	-
Bulgaria	1	2	4	1	2	2	1	0	0	1	3	NR	17	2.3
Cyprus	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
Czech Republic	2	0	2	1	1	0	0	1	0	0	0	0	7	0.7
Denmark	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
Finland	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	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	-
Greece	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
Hungary	0	2	1	5	0	0	0	0	0	0	0	0	8	0.8
Iceland	0	0	0	0	0	0	0	0	0	0	0	NR	0	0.0
Ireland	0	0	2	0	4	2	0	1	0	0	2	0	11	2.5
Italy	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	-
Latvia	0	0	0	0	3	2	0	2	1	0	0	0	8	3.6
Lithuania	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
Luxembourg	0	0	1	0	0	0	0	0	0	0	NR	NR	1	2.0
Malta	0	0	0	0	0	0	0	0	0	0	NR	NR	0	0.0
Netherlands	0	0	0	1	0	0	0	0	0	0	0	0	1	0.1
Norway	0	1	0	0	0	0	0	0	0	0	0	0	1	0.2
Poland	174	279	695	1076	1032	732	407	214	178	239	402	831	6259	163.8
Portugal	0	0	0	0	0	1	0	0	1	0	1	0	3	0.3
Romania	2806	6965	7870	1874	899	299	34	9	4	11	1	NR	20772	970.0
Slovakia	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
Spain	5	12	15	13	8	2	2	2	0	0	0	1	60	1.3
Sweden	0	0	0	1	2	15	29	3	0	0	0	0	50	5.3
United Kingdom	3	19	17	10	7	5	4	0	0	0	2	2	69	1.1
<b>Total</b>	<b>2993</b>	<b>7281</b>	<b>8607</b>	<b>2983</b>	<b>1960</b>	<b>1060</b>	<b>477</b>	<b>235</b>	<b>184</b>	<b>251</b>	<b>411</b>	<b>834</b>	<b>27276</b>	<b>94.2*</b>

\* The marked increase in incidence from 81.5 per million (see January 2013 surveillance report) to 94.2 per million results from the exclusion of Italy from the most recent estimate. Italy did not report rubella data for any of the 12 months in the reporting period and was therefore not included in the population denominator.

NR: data not reported

Notification rates were calculated using the most recent population estimates available from Eurostat (2011). Countries with a notification rate  $\geq 1$  per million population are highlighted in green.

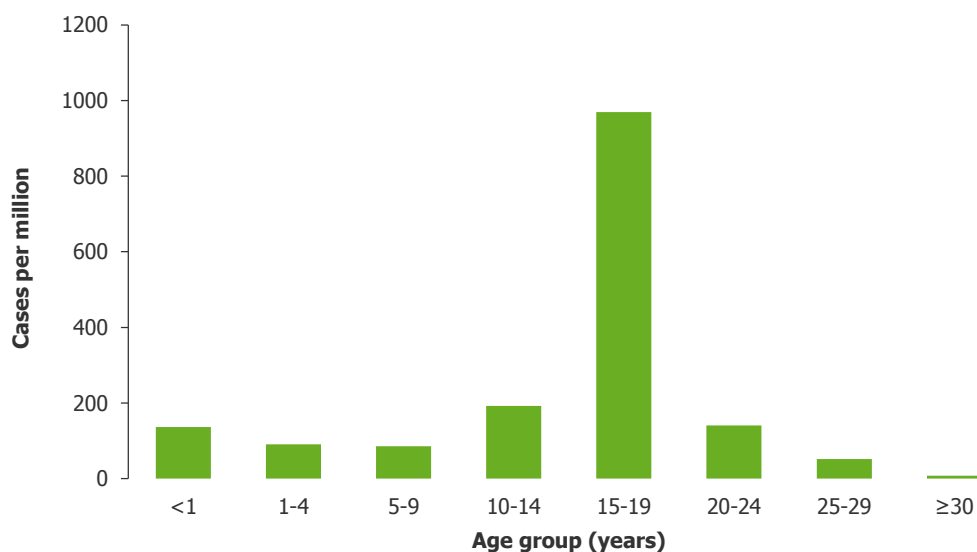
Progress toward elimination is monitored against a target incidence of less than one confirmed case per million population per year, excluding cases confirmed as imported.

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 2008 case definitions are included.

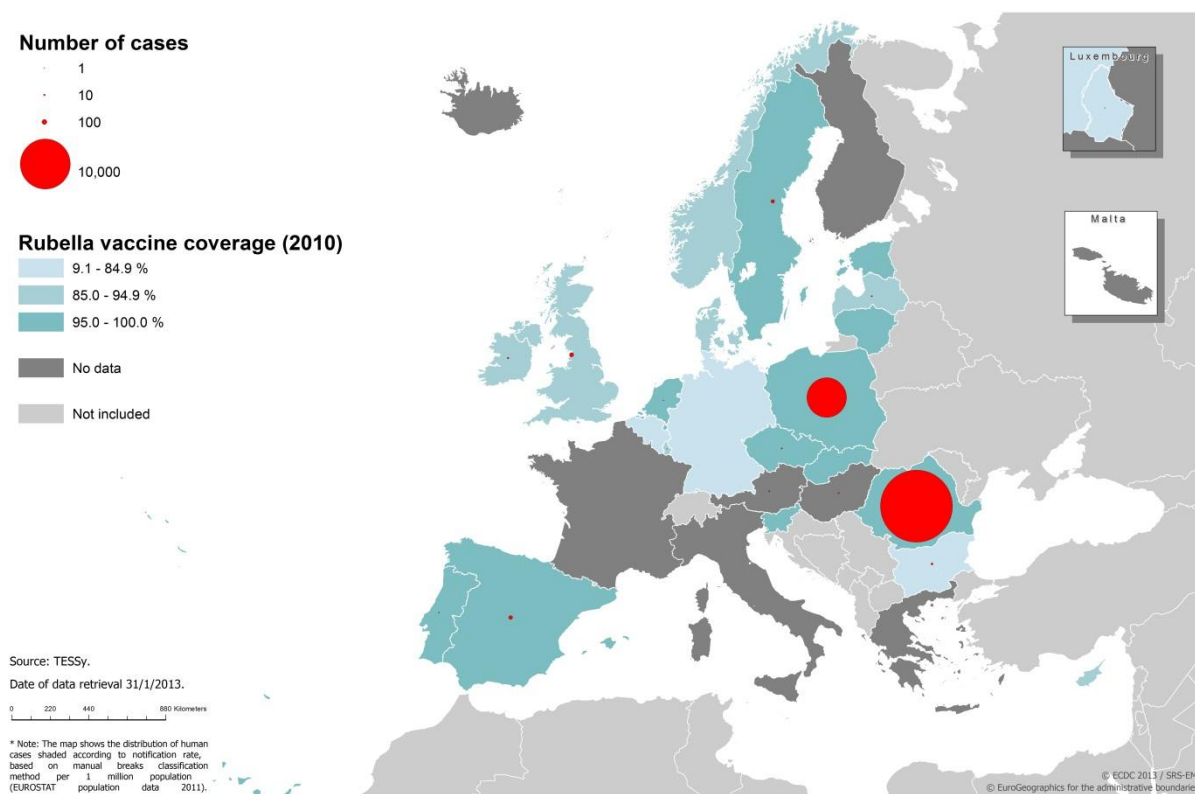
For tables relating to number of rubella cases in previous years, see:

<http://ecdc.europa.eu/en/activities/surveillance/euvac/data/Pages/status-rubella-reporting.aspx>

**Figure 7. Rubella notification rates (cases per million) by age group, January – December 2012, EU/EEA countries (n=27 222 cases with known age)**



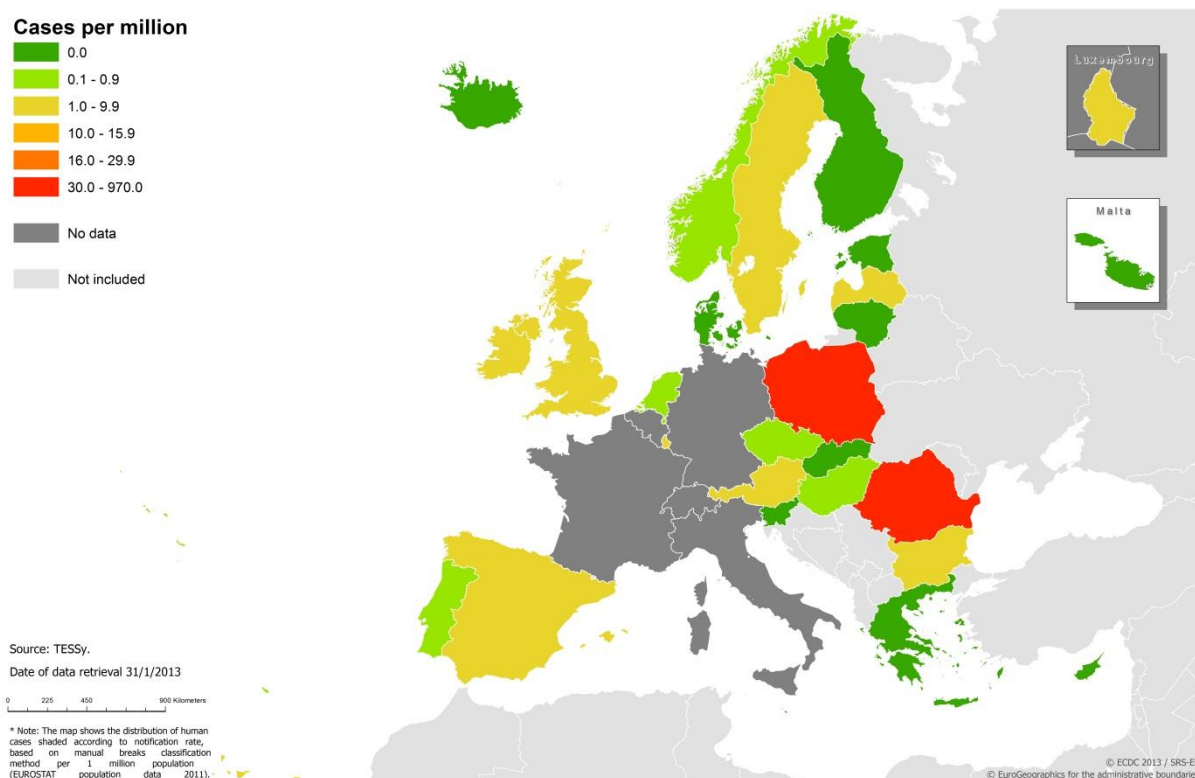
**Figure 8. Number of rubella cases by country, January – December 2012, EU/EEA countries (n=27 276), and two-dose rubella vaccine coverage\* (2010 CISID), EU/EEA countries**



\* Coverage figures (%) are official national figures reported via the annual WHO/UNICEF Joint Reporting Form and WHO Regional Office for Europe reports.



**Figure 9. Rubella notification rates (cases per million) by country, January – December 2012, EU/EEA countries (n=27 276)**



## Epidemic intelligence

No new outbreaks of measles or rubella have been detected in the EU Member States since the previous Measles and Rubella Monitoring Report.

## Publications

### Measles outbreak hits northeast England

Wise J. *Measles outbreak hits northeast England*. *BMJ* 2013;346:f662.

Available from: <http://www.bmj.com/content/346/bmj.f662?etoc>

This British Medical Journal news item provides an update on a measles outbreak in Northeast England with more than 100 confirmed (notified since September 2012) or suspected cases and 29 requiring hospital treatment.

Most of the cases are in unvaccinated schoolchildren and young adults. Immunisation officials are urging parents to ensure that their children have received the required two doses of measles-mumps- rubella (MMR) vaccine.

Uptake of the MMR vaccine fell from 92% in early 1995 to 79.9% in 2002–3 largely because of speculation that it might be linked to autism and Crohn's disease. MMR uptake is now rising again, with the latest figures showing an uptake of 91.2% in England in 2011–12.

### Large measles outbreak in Geneva, Switzerland, January to August 2011: descriptive epidemiology and demonstration of quarantine effectiveness

Delaporte E, Wyler Lazarevic CA, Iten A, Sudre P. *Large measles outbreak in Geneva, Switzerland, January to August 2011: descriptive epidemiology and demonstration of quarantine effectiveness*. *Euro Surveill*. 2013;18(6):pii=20395.

Available from: <http://www.eurosurveillance.org/ViewArticle.aspx?ArticleId=20395>

This article describes the measures taken by public health authorities in the canton of Geneva, Switzerland, to control a measles epidemic in 2011. This event was the result of multiple importations from nearby France and demonstrates the effectiveness of active contact tracing and quarantine at home for exposed people without proof of vaccination. Quarantine reduced the risk of community transmission by 95% and overall risk of transmission by 74%.

The health and economic benefits of breaking the chain of measles transmission early are reflected by the complication rate. Seventeen (8%) patients were hospitalised, one of them for 10 days in intensive care with respiratory failure. The other causes of hospitalisations were encephalitis (n=1), pneumonia (n=4), hypoxemia (n=4), general alteration of health status (n=4), and two cases stayed overnight for clinical observation.

Measles spreads rapidly and effective control relies on early detection of outbreaks. Fever and rash surveillance and parallel independent reporting by both care providers and diagnostic services are critical elements of early detection. In Switzerland, physicians have to report all cases to public health authorities within 24 hours that present with maculopapular rash, fever and any of the following symptoms: cough, coryza or conjunctivitis. Laboratories are also required to report positive measles tests within 24 hours.

Many of the EU/EEA countries who are attempting to eliminate measles transmission by 2015 would be well advised to focus on the timely detection of outbreaks and rapid implementation of effective control measures.

## Useful links

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

<http://ecdc.europa.eu/en/healthtopics/measles/Pages/index.aspx>

<http://ecdc.europa.eu/EN/HEALTHTOPICS/RUBELLA/Pages/index.aspx>

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

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

More information on the surveillance of vaccine-preventable diseases in the European Union is available from the [EUVAC-Net](#) website.

## Notes

- 1) The European Surveillance System (TESSy) reports 'date used for statistics', which is a date chosen by the country for reporting purposes. Such date may indicate onset of disease, date of diagnosis, date of notification, or date of laboratory confirmation.
- 2) 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. Measles and rubella data for this issue were retrieved on 31 January 2013. Later retrievals of data may result in slightly different numbers as countries have the possibility to retrospectively update data in the European Surveillance System.
- 3) Starting with the September 2012 issue, ECDC has been reporting measles and rubella notification rates per one million population – and not, as previously, per one hundred thousand population. The reason for this is that the WHO incidence indicator to monitor progress toward elimination is 'number of confirmed cases per one million population and year'. The elimination target for both measles and rubella for Europe is less than one case per million population and year. Read more about the elimination verification process in: [Surveillance Guidelines for Measles, Rubella and Congenital Rubella Syndrome in the WHO European Region](#), and [Eliminating Measles and Rubella, Framework for the Elimination Process in the WHO European Region](#)