

## SURVEILLANCE REPORT

# Measles and rubella monitoring

May 2013

## Main developments

### Measles

- The 30 contributing countries (29 EU/EEA countries and Croatia) reported 8 127 cases of measles during the last 12-month period (April 2012 to March 2013).
- Luxembourg did not report for three of the 12-month reporting period. The Netherlands did not report data for February and March 2013 and Iceland did not report data for March 2013.
- France, Germany, Italy, Romania, Spain and the United Kingdom accounted for 95% of the cases in the last 12-month period.
- Fourteen countries met the elimination target of less than one case of measles per million population during the last 12 months.
- Sixty-six per cent of the cases had a positive result in a measles laboratory test (serology, virus detection or isolation).
- Of the 7 757 cases for which information on vaccination status was available, 82% were unvaccinated. In the target group for routine childhood MMR vaccination (1–4-year-olds), 78% of the cases were unvaccinated.
- No measles-related deaths were reported during the period April 2012–March 2013 but six cases were complicated by acute measles encephalitis.
- Epidemic intelligence reports:
  - In the United Kingdom, measles transmission continues in England and Wales.
  - Public Health England has launched a catch-up measles vaccination campaign that aims to immunise an estimated 330 000 unvaccinated people in the 10–16-year-old age group. The plan is to halt the outbreak before the school start in autumn.

### Rubella

- The 27 EU/EEA countries contributing to enhanced rubella surveillance reported a total of 12 958 cases during the last 12-month period between April 2012 and March 2013.
- Italy and Croatia did not report for the entire period (April 2012 to March 2013). Luxembourg did not report for three of the 12-month reporting period. The Netherlands did not report data for February and March 2013. Poland did not report data for March 2013.
- Five percent of the cases had a positive result in a rubella laboratory test (serology, virus detection or isolation).
- Poland and Romania accounted for 99% of all reported rubella cases in the 12-month period. Romania has reported an average of seven cases per month since August 2012, indicating that the nationwide epidemic that affected more than 20 000 people is now over.
- Poland is experiencing a nationwide rubella epidemic. Since August 2012, Poland has reported over 95% of all rubella cases in the EU/EEA. The highest notification has been among adolescents aged 15–19 years. Women represented 39.6 % of the case-based reports in the 15–44-year age group.

# Measles

## Surveillance data

The enhanced measles surveillance data were retrieved from The European Surveillance System (TESSy) on 30 April 2013. The analysis covered the 12-month period from April 2012 to March 2013. All the 30 contributing countries (29 EU/EEA countries and Croatia) reported case-based data for the period. Data were missing for three months (November, December and January) of the 12-month reporting period for Luxembourg while the Netherlands did not report data for February and March 2013; Iceland did not report data for March 2013.

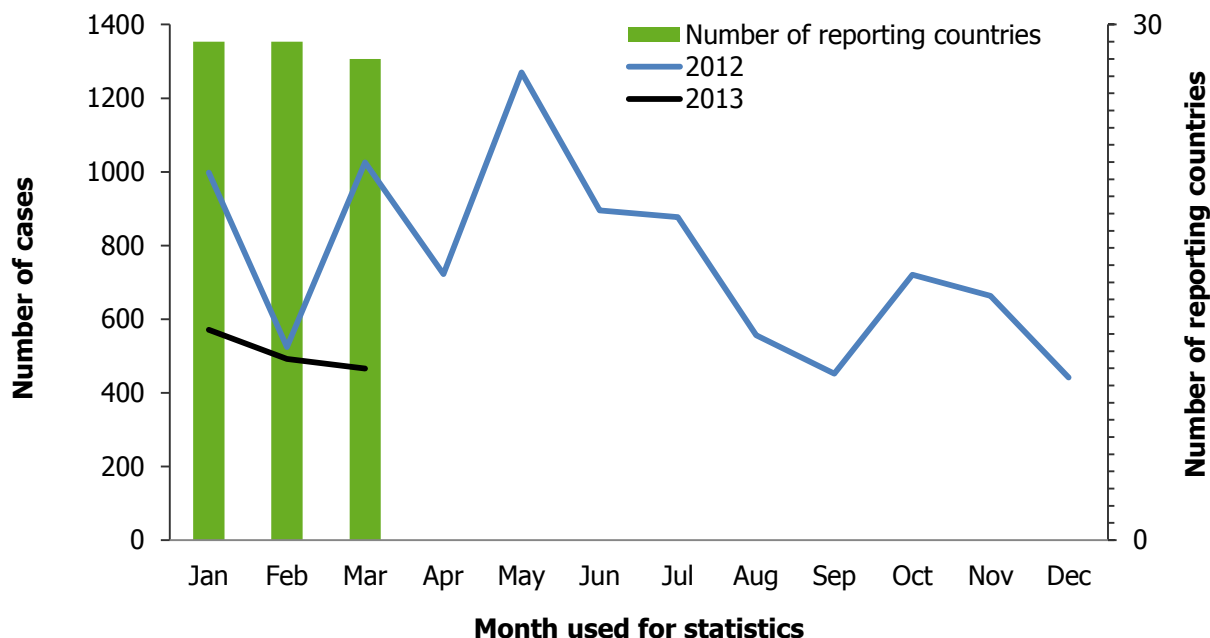
The number of cases and notification rates for the past 12 months are shown in Table 1. During the period April 2012 to March 2013, 8 127 cases of measles were reported (Figure 1). The highest notification rate was among infants under one year of age (224.6 cases per million population), followed by children aged between one and four years (101.1 cases per million population) (Figure 2). The number of reported cases in March 2013 was about half of that reported for the same month in 2012, and the expected increase in cases normally associated with the peak transmission season of measles in the spring has so far not been observed in the 2013 data.

Sixty-six percent of the cases had a positive result in a measles laboratory test (serology, virus detection or isolation) but variations were observed between countries.

Vaccination status was known for 7 757 (95%) of the 8 127 reported cases. Of these, 82% (6 389 cases) were unvaccinated, 12.5% (973) had received one dose of measles vaccine, 3.5% (273) had received two or more doses, and 1.6% (122) had received an unknown number of doses. The proportion of unvaccinated cases was high across all age groups (Figure 3). Among the 1–4-year-olds, which is the age group targeted by routine childhood vaccination programmes, 78% of the cases were unvaccinated.

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

**Figure 1. Number of measles cases in 2012 and 2013 and number of European countries reporting, by month, 2013**



**Table 1. Number of measles cases by month and notifications rates (cases per million), April 2012–March 2013, EU/EEA countries and Croatia**

Country	2012									2013			Total cases	Lab. positive	Cases per million
	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar			
Austria	2	2	4	1	3	1	2	0	0	4	8	8	35	16	4.2
Belgium	8	30	17	11	3	4	4	6	4	4	1	7	99	22	9.0
Bulgaria	0	0	0	0	1	0	0	0	0	0	0	0	1	1	0.1
Croatia	1	0	1	0	0	0	0	0	0	0	0	0	2	0	0.5
Cyprus	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
Czech Republic	2	7	4	1	2	1	0	0	0	0	3	3	23	23	2.2
Denmark	0	1	0	0	0	0	0	0	0	3	0	7	11	8	2.0
Estonia	2	1	0	0	0	0	0	0	1	0	0	1	5	5	3.7
Finland	3	0	0	0	0	1	0	0	0	0	0	0	4	0	0.7
France	110	103	92	75	31	10	25	27	17	26	23	20	559	259	8.6
Germany	18	56	17	19	11	3	3	5	6	9	9	45	201	149	2.5
Greece	0	1	1	1	0	0	0	0	0	2	1	0	6	6	0.5
Hungary	1	0	0	0	0	0	0	0	0	0	0	1	2	2	0.2
Iceland	0	0	0	0	0	0	0	0	0	0	0	NR	0	0	0.0
Ireland	2	53	18	3	2	9	9	1	0	1	5	0	103	25	23.0
Italy	100	105	59	28	6	13	74	11	21	31	55	20	523	211	8.6
Latvia	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
Lithuania	2	0	0	0	0	0	0	0	0	0	0	0	2	2	0.6
Luxembourg	0	0	1	0	0	0	0	NR	NR	NR	0	0	1	1	2.0
Malta	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
Netherlands	4	0	1	2	2	0	0	0	0	0	NR	NR	9	8	0.5
Norway	1	0	0	0	2	1	0	0	0	0	0	1	5	5	1.0
Poland	13	11	9	4	6	1	2	4	8	4	8	9	79	52	2.1
Portugal	1	4	0	0	1	0	0	0	0	0	0	0	6	4	0.6
Romania	317	620	338	495	267	182	371	336	269	208	105	133	3641	1839	170.0
Slovakia	0	0	0	0	1	0	0	0	0	0	0	0	1	1	0.0
Slovenia	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
Spain	65	59	55	30	7	4	8	0	0	5	14	8	255	211	5.5
Sweden	4	1	0	1	1	1	1	0	1	4	8	9	31	30	3.3
United Kingdom	66	216	278	206	210	221	222	273	115	270	252	194	2523	2522	40.4
<b>Total</b>	722	1270	895	877	556	452	721	663	442	571	492	466	8127	5402	15.9

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 per year are highlighted in green. Progress toward elimination is measured against meeting the incidence target 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.

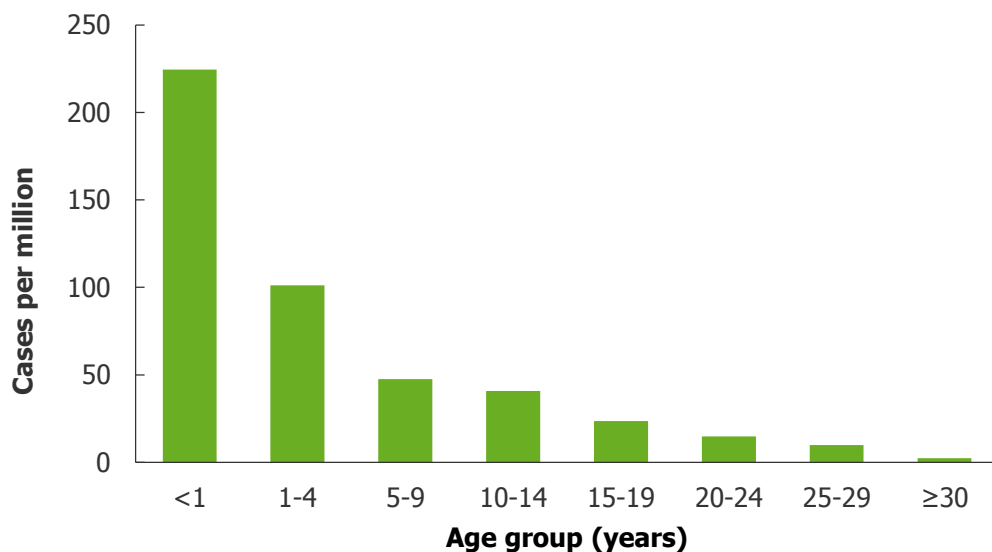
All confirmed, probable, possible or unknown cases as defined by the EU 2008 case definitions are included.

Cases were defined laboratory positive if at least one of the following variables is reported as positive: serologic test for IgG, serologic test for IgM, virus detection or isolation.

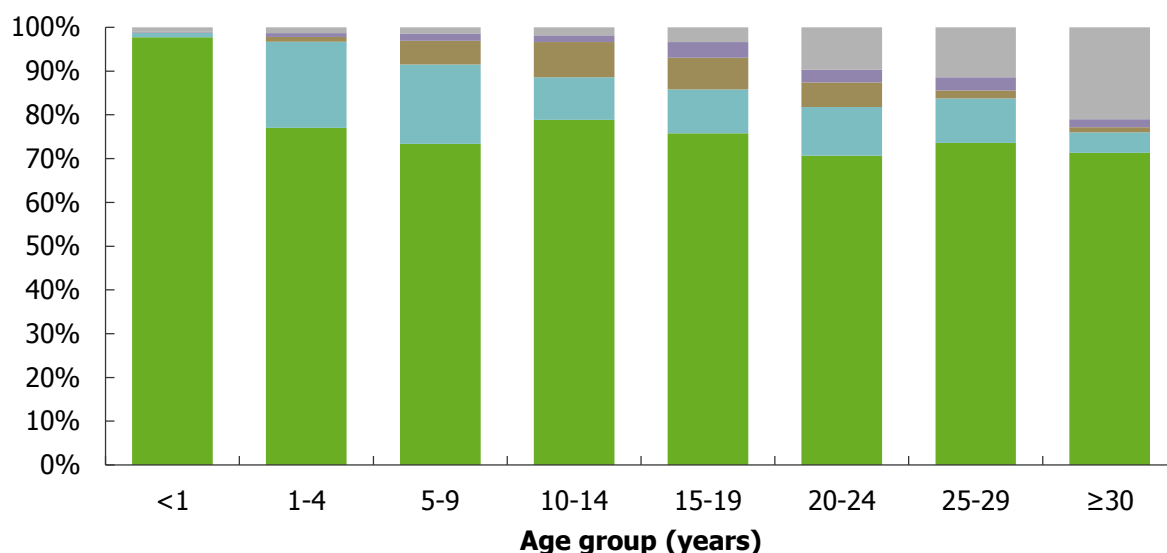
For tables relating to the number of measles cases in previous years, see:

[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, April 2012–March 2013, EU/EEA countries and Croatia (N=8 069 cases with known age)**

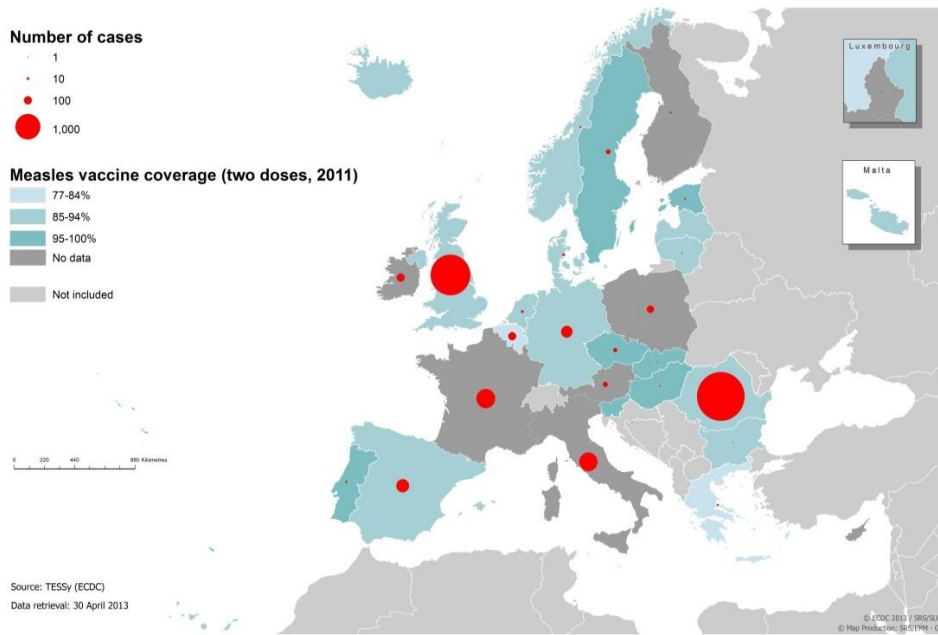


**Figure 3. Proportion of vaccination status among measles cases by age group, April 2012–March 2013, EU/EEA countries and Croatia (N=7 757 cases with known age and vaccination status)**



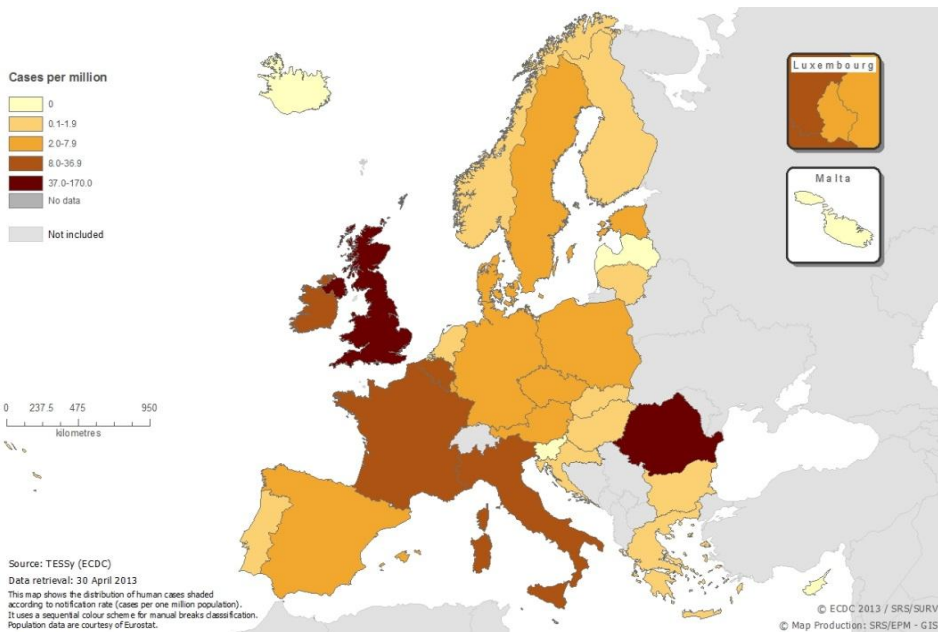
- Unvaccinated
- Vacc. ≥2 doses
- Unknown vacc. status
- Vacc. 1 dose
- Vacc. with unknown no. of doses

**Figure 4. Number of measles cases by country, April 2012–March 2013, EU/EEA countries (N=8 133), and two-dose measles vaccine coverage\* (2011 CISID), EU/EEA countries and Croatia**



\* 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, April 2012–March 2013, EU/EEA countries and Croatia (N=8 133)**



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

The enhanced rubella surveillance data were retrieved from The European Surveillance System (TESSy) on 30 April 2013. The analysis covers the 12-month period between April 2012 and March 2013.

Of the 27 contributing countries, 22 reported data for the entire reporting period. Italy and Croatia did not report data for any of the months in the 12-month surveillance period and were excluded from the analysis. Luxembourg did not report for three months. The Netherlands did not report data for February and March 2013. Poland did not report data for March 2013.

Three EU countries – Belgium, France and Germany – do not operate rubella surveillance systems with national coverage and hence do not contribute incidence data to the EU/EEA enhanced surveillance for rubella.

The number of cases and notification rates for the past 12 months are shown in Table 2.

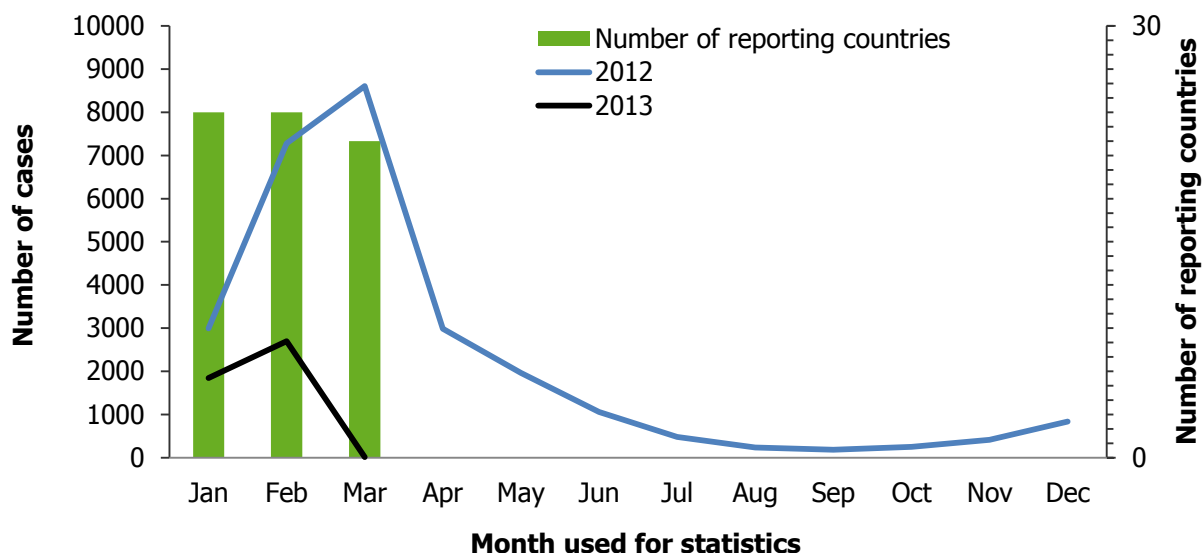
During the period from April 2012 to March 2013, 12 958 cases of rubella were reported. Poland and Romania accounted for 99% of the reported cases.

Five per cent of the cases were reported to have had a positive result in a rubella laboratory test (serology, virus detection or isolation). None of the 9361 rubella cases reported by Poland and 18% of the cases reported by Romania had a positive laboratory test.

Romania has reported an average of seven cases per months since August 2012, indicating that the nationwide epidemic that affected more than 20 000 people in the country is now over [1].

Since August 2012, Poland has reported over 95% of all rubella cases. The country is experiencing a nationwide rubella epidemic. The highest notification rate (116.1 cases per million population) has been among adolescents aged 15–19 years (Figure 7) indicating that these cohorts have lower vaccine-induced immunity [2]. Women represented 39.6 % of the case-based reports in the 15–44 year age group.

**Figure 6. Number of rubella cases in 2012 and 2013, and number of EU/EEA countries reporting by month, 2013**



*Note: 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), April 2012–March 2013, EU/EEA countries**

Country	2012									2013			Total cases	Lab. positive cases	Cases per million
	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar			
Austria	1	2	0	0	3	0	0	0	0	0	0	1	7	4	0.8
Belgium	National rubella incidence data not collected in Belgium														
Bulgaria	1	2	2	1	0	0	1	3	0	1	1	0	12	1	1.6
Croatia	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	-	-
Cyprus	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
Czech Republic	1	1	0	0	1	0	0	0	0	0	0	0	3	2	0.3
Denmark <sup>1</sup>	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	National rubella incidence data not collected in France														
Germany	National rubella incidence data not collected in Germany														
Greece	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
Hungary	5	0	0	0	0	0	0	0	0	0	0	0	5	5	0.5
Iceland	0	0	0	0	0	0	0	0	0	0	0	NR	0	0	0.0
Ireland	0	4	2	0	1	0	0	2	0	0	0	2	11	1	2.5
Italy	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	-	-
Latvia	0	3	2	0	2	1	0	0	0	0	0	0	8	7	3.6
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	NR	NR	NR	0	0	0	0	0.0
Malta	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
Netherlands	1	0	0	0	0	0	0	0	0	0	NR	NR	1	1	0.1
Norway	0	0	0	0	0	0	0	0	0	1	1	0	2	2	0.4
Poland	1076	1032	732	407	214	178	239	402	831	1833	2687	NR	9631	0	252.1
Portugal	0	0	0	0	0	1	0	1	0	0	1	0	3	0	0.3
Romania	1874	899	299	34	9	4	11	1	0	10	9	10	3160	570	147.6
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	13	8	3	4	2	1	0	0	1	0	0	0	32	28	0.7
Sweden	1	2	15	29	3	0	0	0	0	0	0	0	50	38	5.3
United Kingdom	10	7	5	4	0	0	0	2	2	1	0	2	33	29	0.5
<b>Total</b>	<b>2983</b>	<b>1960</b>	<b>1060</b>	<b>479</b>	<b>235</b>	<b>185</b>	<b>251</b>	<b>411</b>	<b>834</b>	<b>1846</b>	<b>2699</b>	<b>15</b>	<b>12958</b>	<b>688</b>	<b>44.8</b>

<sup>1</sup> The national surveillance system for rubella in Denmark currently only captures rubella infections during pregnancy, and the true incidence of rubella in the Danish population will be under-estimated

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 measured against meeting the incidence target of less than one confirmed case per million population per year, excluding cases confirmed as imported.

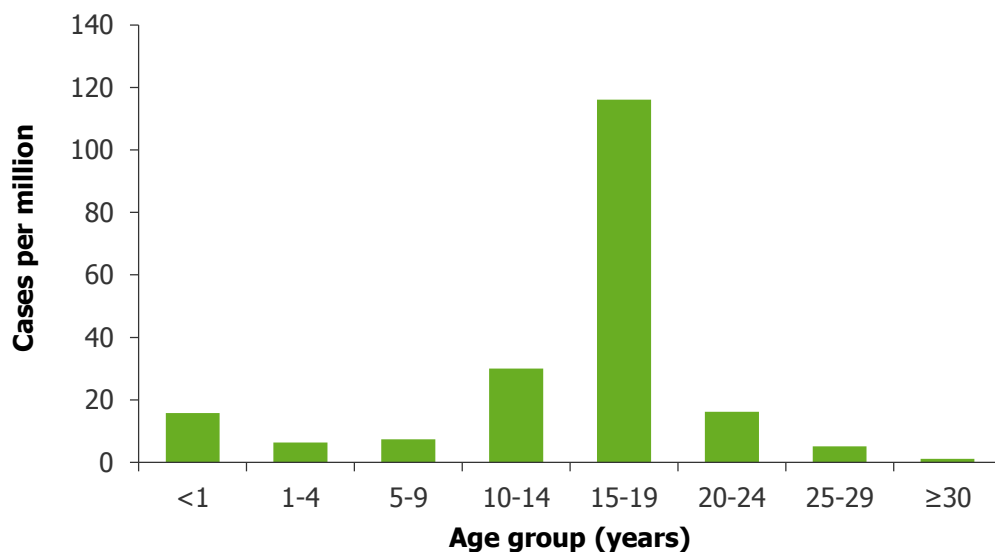
For countries that did not report data for all 12 months, notification rates might be underestimated. All confirmed, probable, possible or unknown cases as defined by the EU 2008 case definitions are included.

Cases were defined laboratory positive if at least one of the following variables is reported as positive: serologic test for IgG, serologic test for IgM, virus detection or isolation, IgG avidity test.

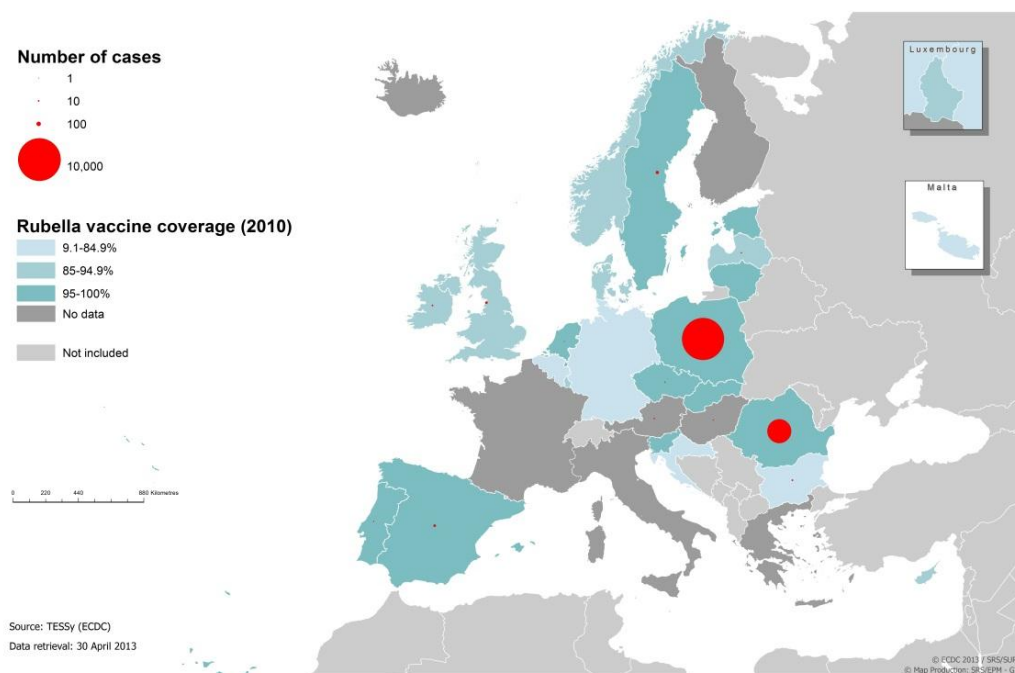
For tables relating to number of rubella cases in previous years, see:

<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, April 2012–March 2013, EU/EEA countries (N=3 273 cases with known age)**



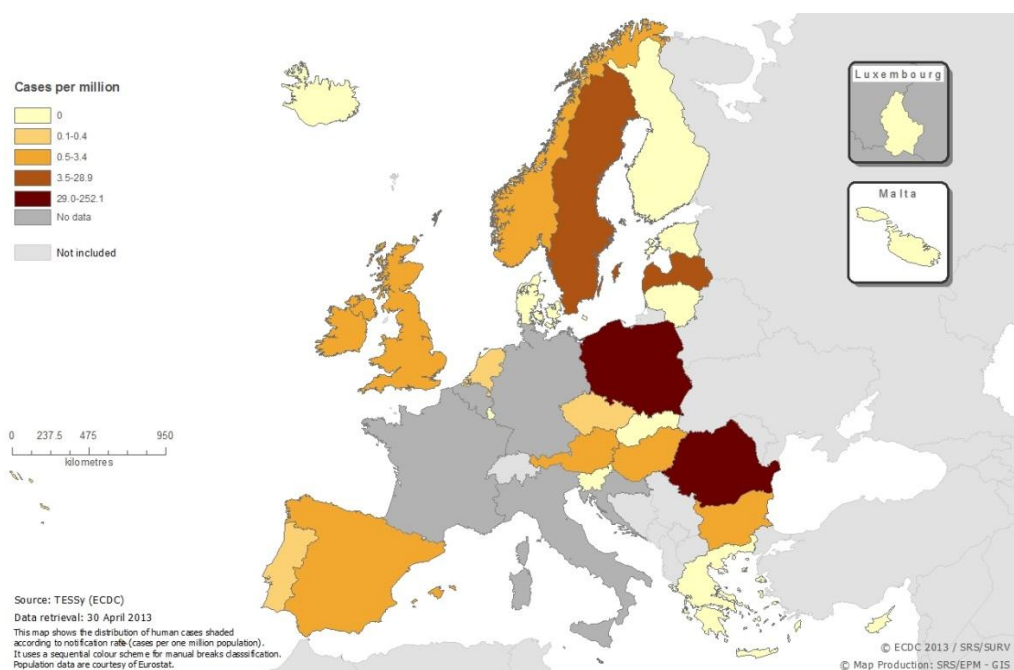
**Figure 8. Number of rubella cases by country, April 2012–March 2013, EU/EEA countries (N=12 958), and two-dose rubella vaccine coverage\* (2010 CISID), EU/EEA countries**



\* 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, April 2012–March 2013, EU/EEA countries (N=12 958)**



# Epidemic intelligence

## Measles

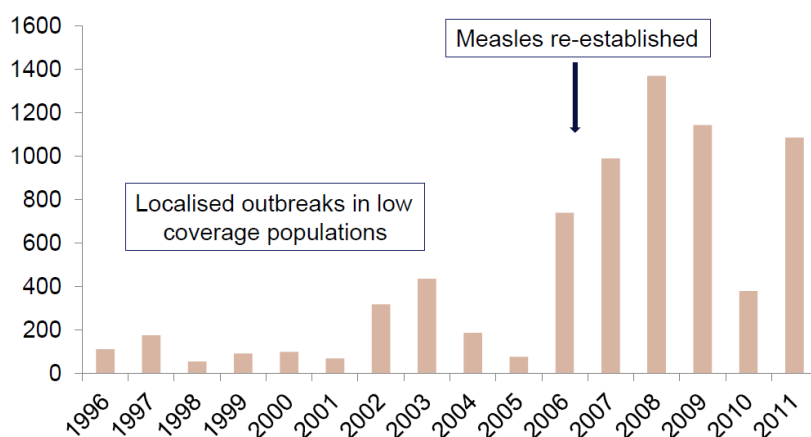
### United Kingdom

Measles transmission continues in the UK. Across Wales the number of notified cases has reached 1 170. Although more than 33 000 non-routine vaccinations have been given across Wales during the outbreak. It is estimated that 43 000 people remain unvaccinated in Wales. During the first quarter of 2013, 587 cases of measles were reported in England of which 20% were associated with school outbreaks.

In April 2013, Public Health England (PHE) UK launched a national MMR vaccination catch-up programme in response to the increase in measles transmission. The aim of the programme is to prevent measles outbreaks by vaccinating as many unvaccinated and partially vaccinated 10-16 year-olds as possible in time for the next school year. PHE estimates that around 8 % (330 000) of the 10-16 year-olds are unvaccinated and that around the same number are in need of at least one more dose of MMR to give them full protection. The catch-up campaign is expected to deliver up to one million out-of-schedule MMR vaccinations. The graphs in Figure 11 and Figure 12 are from a presentation by Dr Mary Ramsay, Head of immunisations at PHE, in which she explains some of the reasons behind the re-emergence of measles in 2006 in the UK after endemic disease transmission had been eliminated in the 1990s. The full presentation is available at:

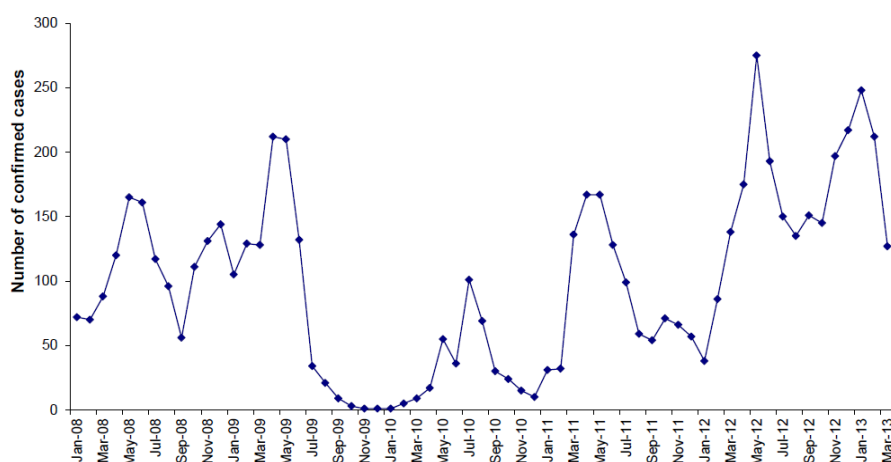
[https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/192611/Presentation\\_by\\_Mary\\_Ramsay - Measles in England 2012 2013.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/192611/Presentation_by_Mary_Ramsay_-_Measles_in_England_2012_2013.pdf)

**Figure 10. Annual confirmed cases of measles, England and Wales, 1996–2011**



Source: Public Health England

**Figure 11. Monthly cases of confirmed measles, England, 2008–March 2013**



Source: Public Health England

# Rubella

## United Kingdom

The number of laboratory confirmed rubella cases in England and Wales increased to 65 in 2012, up from six confirmed cases in 2011, 12 in 2010, and nine in 2009. The last large outbreak of rubella was in 1996, when close to 4000 cases were reported in England and Wales. See also: <http://www.bmj.com/content/346/bmj.f2935?etoc>

## Publications

### Measles in the UK: a test of public health competency in a crisis

Greaves F, Donaldson L. Measles in the UK: a test of public health competency in a crisis. *BMJ* 2013;346:f2793. Available from: <http://www.bmj.com/content/346/bmj.f2793>

In their editorial in the *British Medical Journal*, Felix Greaves, honorary clinical research fellow, and Liam Donaldson, professor of health policy, argue that the current surge in measles in the UK should be managed as a public health emergency and ask 'whether it is ethically acceptable to tolerate any serious complication, or death, from measles when an effective vaccine is available.'

### Analysis of national measles surveillance data in Italy from October 2010 to December 2011 and priorities for reaching the 2015 measles elimination goal

Filia A, Bella A, Rota MC, Tavilla A, Magurano F, Baggieri M, et al. Analysis of national measles surveillance data in Italy from October 2010 to December 2011 and priorities for reaching the 2015 measles elimination goal. *Euro Surveill.* 2013;18(20):pii=20480. Available from: <http://www.eurosurveillance.org/ViewArticle.aspx?ArticleId=20480>

From 1 October 2010 to 31 December 2011, Italy experienced a high measles burden with 5 568 measles cases (37.4% laboratory confirmed) reported to the enhanced measles surveillance system (cumulative incidence in the 15-month reference period: 9.2/100 000 population). Adolescents and young adults were especially affected, and the median age of cases was 18 years. Most cases (95.8%) were either unvaccinated or incompletely vaccinated. Complications were reported for 20.3% of cases, including 135 cases of pneumonia, seven of encephalitis and one case of Guillain-Barré syndrome. One death occurred in an immunocompromised adult. Over 1 300 cases were hospitalised. Identified priorities for reaching the measles elimination goal include evidence-based interventions such as reminder/recall for both doses of measles vaccine, supplementary immunisation activities aimed at susceptible age cohorts, and vaccinating healthcare workers.

### Survey on rubella, rubella in pregnancy and congenital rubella surveillance systems in EU/EEA countries

European Centre for Disease Prevention and Control. Survey on rubella, rubella in pregnancy and congenital rubella surveillance systems in EU/EEA countries. Stockholm: ECDC; 2013. Available from: <http://ecdc.europa.eu/en/publications/Publications/survey-rubella-pregnancy-congenital-surveillance-systems-may-2013.pdf>

An ECDC-commissioned survey of surveillance systems for rubella and congenital rubella syndrome (CRS) in the EU/EEA countries was conducted between June and November 2012. Twenty-six of the 29 countries had mandatory and comprehensive systems, including a national rubella reference laboratory, and 22 countries had adopted the EU case definition for rubella. Twenty-eight countries had national CRS surveillance, and 24 countries had adopted the EU case definition for CRS. The report concludes that rubella surveillance in EU/EEA could be improved through:

- universal use of zero-reporting;
- better collection of information on imported and import-related cases;
- adoption of uniform case definitions;
- establishment of national surveillance systems in all countries;
- increasing the proportion of laboratory-investigated cases; and
- increased genotyping in order to establish the chains of transmission.

## Challenges and targets for measles elimination

Burki T. Challenges and targets for measles elimination. *The Lancet Infectious Diseases*, Early Online Publication [homepage on the Internet]. 2013 [cited 2013 May 22]. Available from: [http://www.thelancet.com/journals/laninf/article/PIIS1473-3099\(13\)70133-6/fulltext](http://www.thelancet.com/journals/laninf/article/PIIS1473-3099(13)70133-6/fulltext)

In this article by Tahla Burki on measles elimination in *The Lancet Infectious Diseases*, the author concludes that '[as] things stand, only the (WHO) western Pacific region seems likely to achieve elimination in the foreseeable future.' She continues to state that

'[according] to current trends, Europe too is likely to miss its target. Resistance to vaccination, particularly in western Europe, has prevented vaccine coverage from reaching the 95% benchmark. Predictably, measles returned. In 2009, Europe saw 7499 cases; 2 years later, the case load exceeded 30 000 – France alone saw 14 449 cases in 2011. There are all kinds of reasons behind this resurgence: measles has been dormant for so long that Europeans have forgotten how vicious the disease can be; there is growing, unwarranted mistrust of vaccination; and people are becoming over-reliant on herd immunity.'

## 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>

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

Compare vaccination schedule in EU/EEA countries: <http://vaccine-schedule.ecdc.europa.eu/Pages/Scheduler.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 of the 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 webpages.

## 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 according to reporting practices in the respective countries.

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. For this issue, measles data and rubella data were retrieved on 30 April 2013. Later retrievals of data may result in slightly different numbers as countries have the possibility to update data in the European Surveillance System retrospectively.

## References

1. Janta D, Stanescu A, Lupulescu E, Molnar G, Pistol A. Ongoing rubella outbreak among adolescents in Salaj, Romania, September 2011–January 2012. *Euro Surveill*. 2012;17(7):pii=20089. Available from: <http://www.eurosurveillance.org/ViewArticle.aspx?ArticleId=20089>
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