

## SURVEILLANCE REPORT

# Measles and rubella monitoring

December 2012

### Main developments

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 as trivalent measles-mumps-rubella (MMR) vaccine in Europe, and the first of the two recommended doses is normally given during the second year of life.

### Measles

- The 29 contributing EU/EEA countries reported 7 016 cases of measles from January to October 2012 and 8 795 cases during the last 12-month period from November 2011 to October 2012.
- Reporting was complete for the 12-month period, with the exception of Austria and Slovenia, which did not report for October 2012.
- France, Italy, Romania, Spain and the United Kingdom accounted for 94% of the reported cases.
- The number of reported cases is substantially lower in 2012 compared with the same period in 2011, but the aggregated EU/EEA notification rate for the last 12-month period continues to exceed the elimination target of less than one case per million population.
- Twelve countries reported less than one case of measles per million population during the last 12 months, and the aggregated notification rate for the EU/EEA countries was 17.3 cases per million.
- The reduction in notified cases in 2012 indicates that the incidence at EU/EEA level is back at the level before the 2010–2011 outbreaks but does not signify a downward long-term trend in measles notifications.
- Of the cases reported in the last 12-month period for which vaccination status was available, 82% were unvaccinated.
- Fifteen per cent (1 279) of the cases were under one year of age; of these, 97% were reported as unvaccinated. Of 2 254 cases aged 1–4 years, targeted by vaccination programmes in all European countries, 77% were reported as being unvaccinated.
- There were no measles-related deaths reported during the last 12 months but 10 cases were complicated by acute measles encephalitis.
- Measles transmission continued in Europe but no new large outbreaks have been reported since the previous report.

### Rubella

- 26 014 cases of rubella were reported between January and October 2012 by the 26 EU/EEA countries contributing to the enhanced surveillance for rubella.
- 29 927 cases were reported during the 12-months period from November 2011 to October 2012.
- Poland and Romania accounted for 99% of all reported rubella cases in this 12-month period.
- Italy did not report rubella cases between January and October, and Austria and Slovenia did not report for October.

# Measles

## Surveillance data

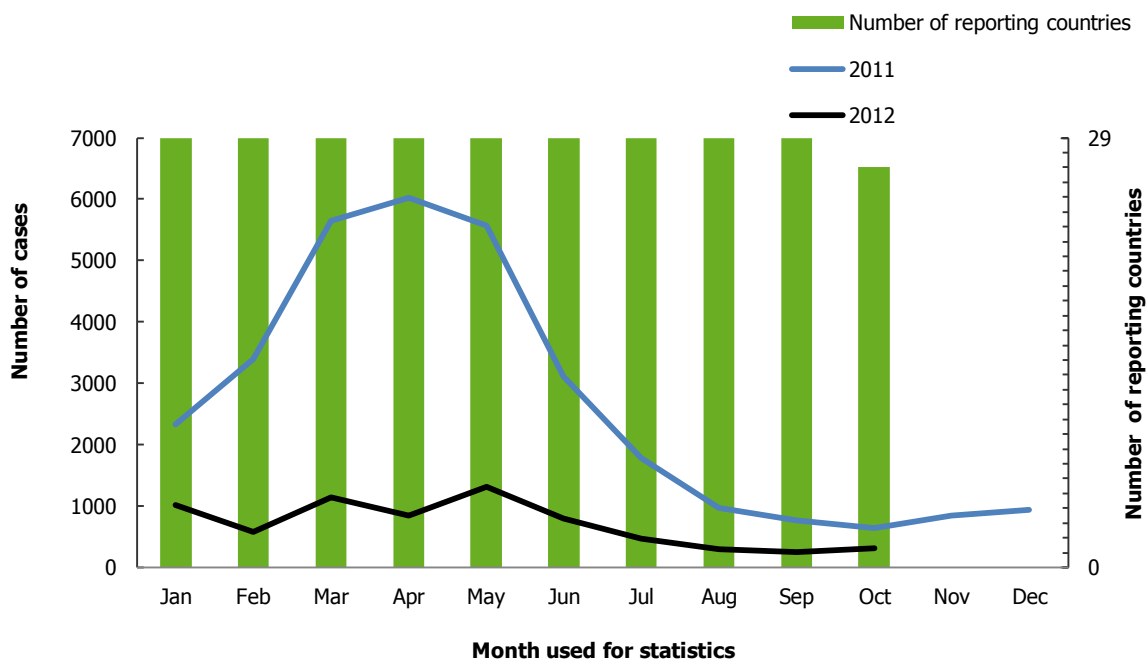
The enhanced measles surveillance data were retrieved from the European Surveillance System (TESSy) on 3 December 2012, and the analysis covers the 12-month period from November 2011 to November 2012. All 29 countries reported case-based data for the period, with the exception of Austria and Slovenia, which did not submit data for October 2012.

The number of cases and notification rates for the past 12 months are shown in Table 1. Reported cases in 2012 are much lower than for the same period in 2011. There was no increase in cases at the European level during the peak transmission season from February to June (Figure 1). The highest notification rate was among infants under one year of age (236 cases per 1 000 000 population), followed by children aged between one and four years (106 cases per 1 000 000 population) (Figure 2).

Vaccination status was known for 8 099 (92%) of the 8 795 reported cases; 82% (6 611 cases) of these were unvaccinated; 13% (1042) had received one dose of measles vaccine; 5% (391) had received two or more doses; and 1% (55) had received an unknown number of doses. The proportion of unvaccinated cases was high across all age groups, including those between one and four years old, the age group targeted by vaccination programmes (Figure 3).

Over the last 12 months, ten cases were complicated by acute measles encephalitis, but no measles-related deaths were reported.

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



**Table 1. Number of measles cases by month and notifications rates (cases per million), November 2011– October 2012, EU/EEA countries**

Country	2011		2012										Total cases	Cases per million
	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct		
Austria	8	6	3	1	0	2	2	4	1	4	0	NR	35	4.2
Belgium	12	2	6	6	3	9	4	9	5	0	0	0	56	5.1
Bulgaria	1	0	0	0	0	0	0	0	0	1	0	0	2	0.3
Cyprus	0	0	0	1	0	0	0	0	0	0	0	0	1	1.2
Czech Republic	0	1	3	2	0	2	7	4	1	2	1	0	23	2.2
Denmark	0	0	1	0	0	0	1	0	0	0	0	0	2	0.4
Estonia	0	0	0	0	0	2	1	0	0	0	0	0	3	2.2
Finland	0	0	0	1	0	3	0	0	0	0	1	0	5	0.9
France	100	126	106	123	140	110	103	92	75	31	10	25	1041	16.0
Germany	21	7	4	18	7	18	56	17	19	11	4	1	183	2.2
Greece	0	0	0	0	0	0	1	1	1	0	0	0	3	0.3
Hungary	0	5	0	1	0	1	0	0	0	0	0	0	7	0.7
Iceland	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
Ireland	15	3	3	4	5	3	53	19	3	3	9	11	131	29.2
Italy	57	54	62	122	89	100	105	58	28	6	11	32	724	11.9
Latvia	0	0	0	2	1	0	0	0	0	0	0	0	3	1.4
Lithuania	0	0	0	0	0	2	0	0	0	0	0	0	2	0.6
Luxembourg	0	0	0	0	1	0	0	1	0	0	0	0	2	3.9
Malta	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
Netherlands	0	0	0	0	1	4	0	1	2	2	0	0	10	0.6
Norway	0	0	0	0	0	1	0	0	0	2	1	0	4	0.8
Poland	0	0	1	1	1	13	11	9	4	6	1	2	49	1.3
Portugal	0	1	1	0	0	1	4	0	0	1	0	0	8	0.8
Romania	357	592	729	110	647	317	620	338	157	77	55	155	4154	194.0
Slovakia	0	0	0	0	0	0	0	0	0	1	0	0	1	0.2
Slovenia	0	0	1	0	1	0	0	0	0	0	0	NR	2	1.0
Spain	203	108	60	69	89	64	59	53	20	4	2	4	735	15.9
Sweden	4	0	2	14	4	4	1	0	1	1	1	0	32	3.4
United Kingdom	63	29	39	111	148	191	289	193	150	138	149	77	1577	25.2
<b>Total</b>	<b>845</b>	<b>934</b>	<b>1021</b>	<b>586</b>	<b>1137</b>	<b>847</b>	<b>1317</b>	<b>799</b>	<b>467</b>	<b>290</b>	<b>245</b>	<b>307</b>	<b>8795</b>	<b>17.3</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.

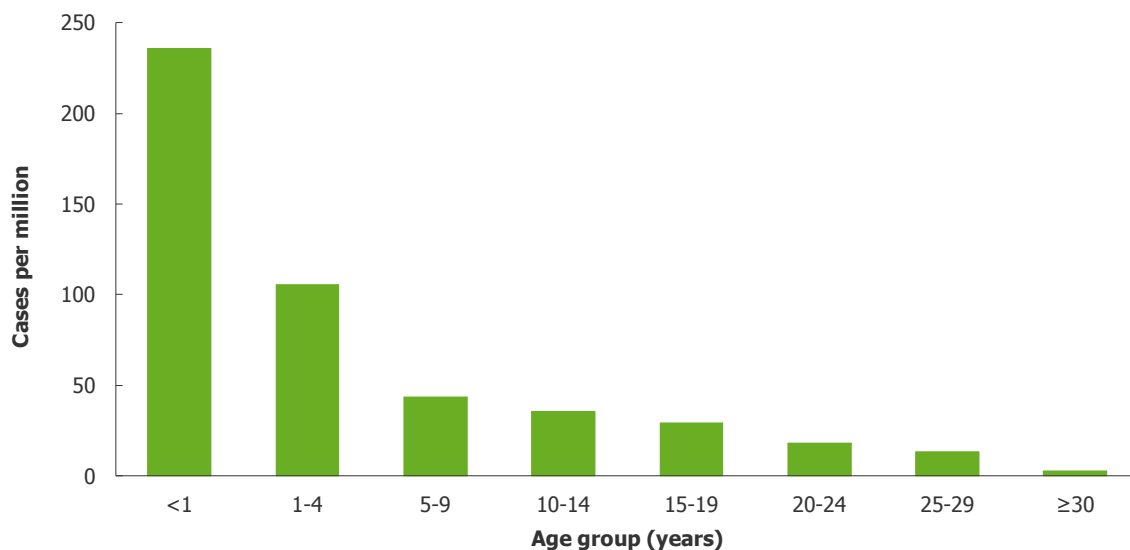
For countries that did not report data for all 12 months, notification rates might be underestimated.

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

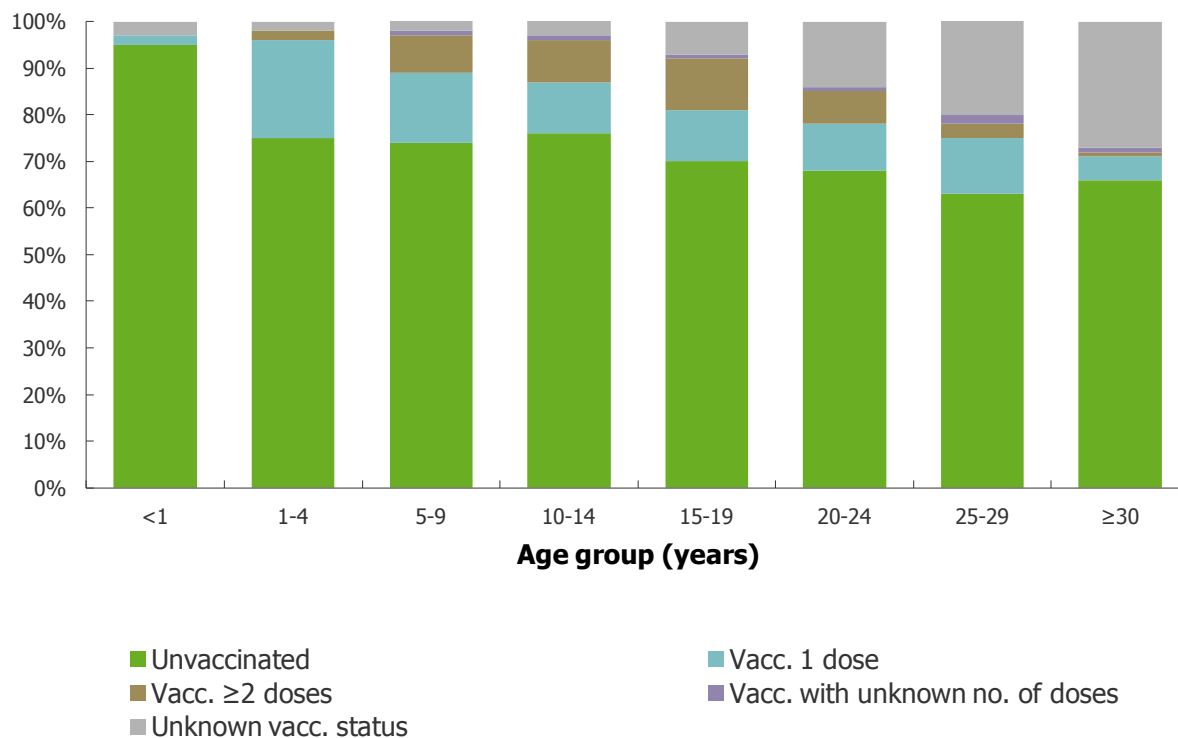
For tables relating to number of measles cases in previous years, see:

[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)

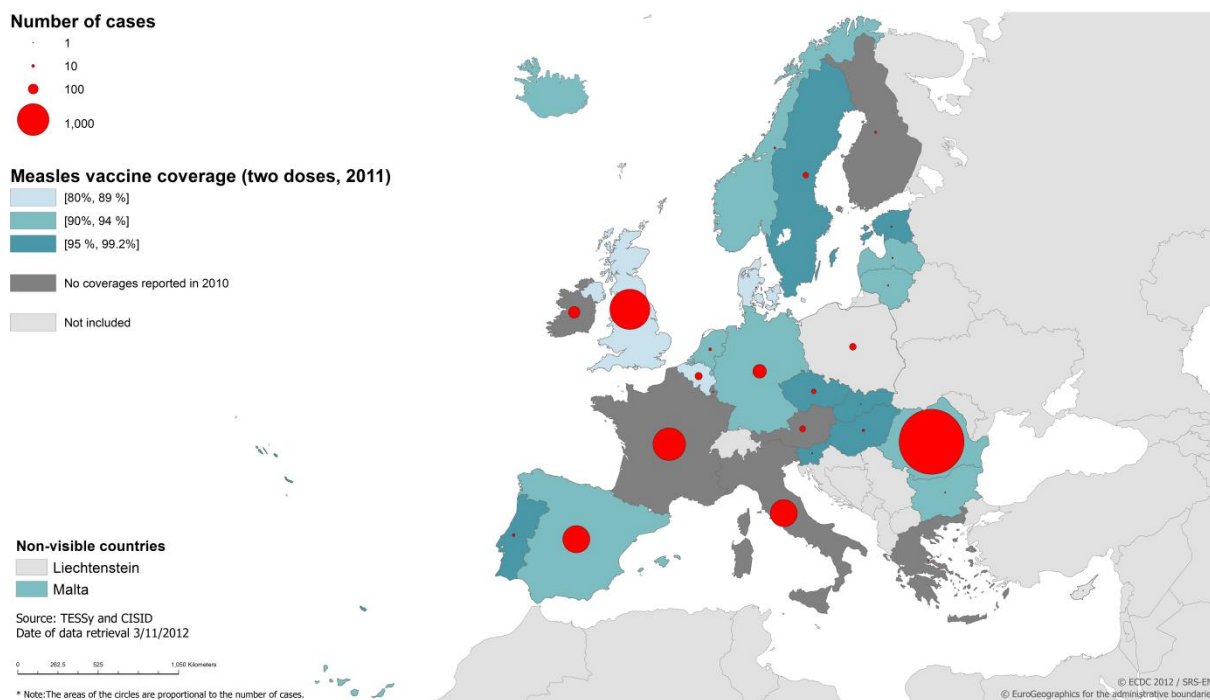
**Figure 2. Measles notification rates (cases per million) by age group, November 2011– October 2012, EU/EEA countries (n=8 568 cases with known age)**



**Figure 3. Proportion of vaccination status among measles cases by age group, November 2011– October 2012, EU/EEA countries (n=8 568 cases with known age)**

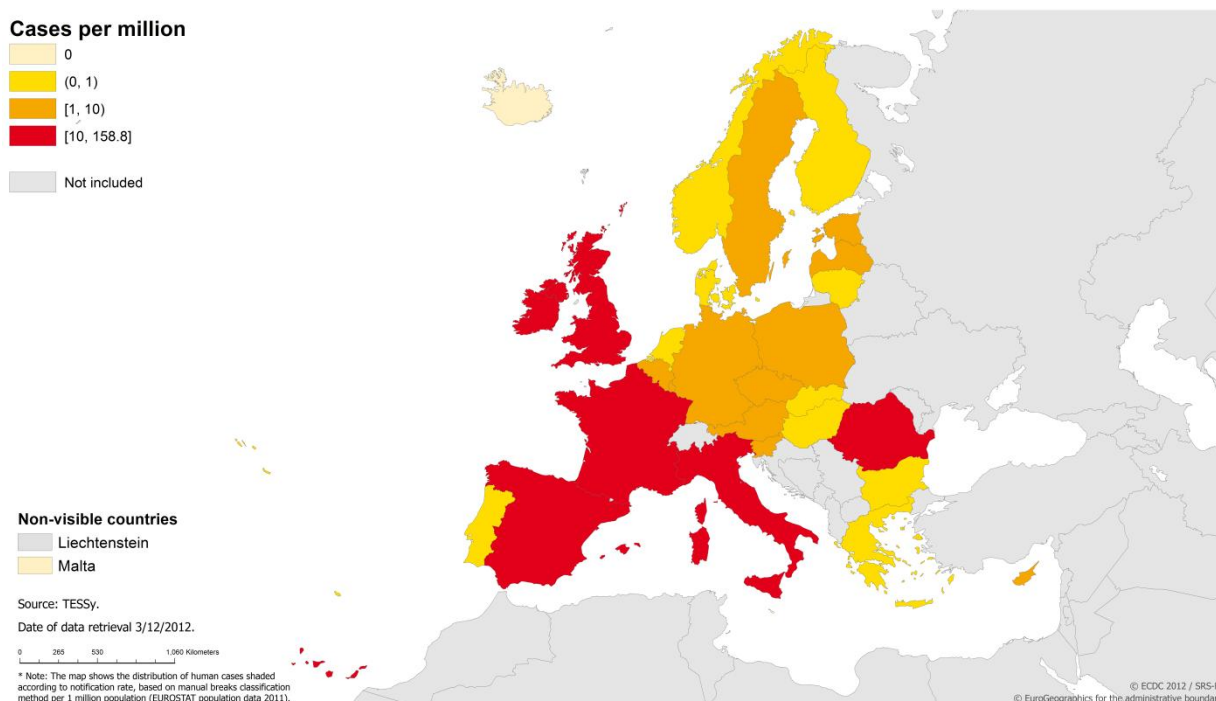


**Figure 4. Number of measles cases by country, November 2011– October 2012, EU/EEA countries (n=8 795), and two-dose measles vaccine coverage\* (2011 CISID), EU/EEA countries**



\* 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, November 2011– October 2012, EU/EEA countries (n=8 795)**



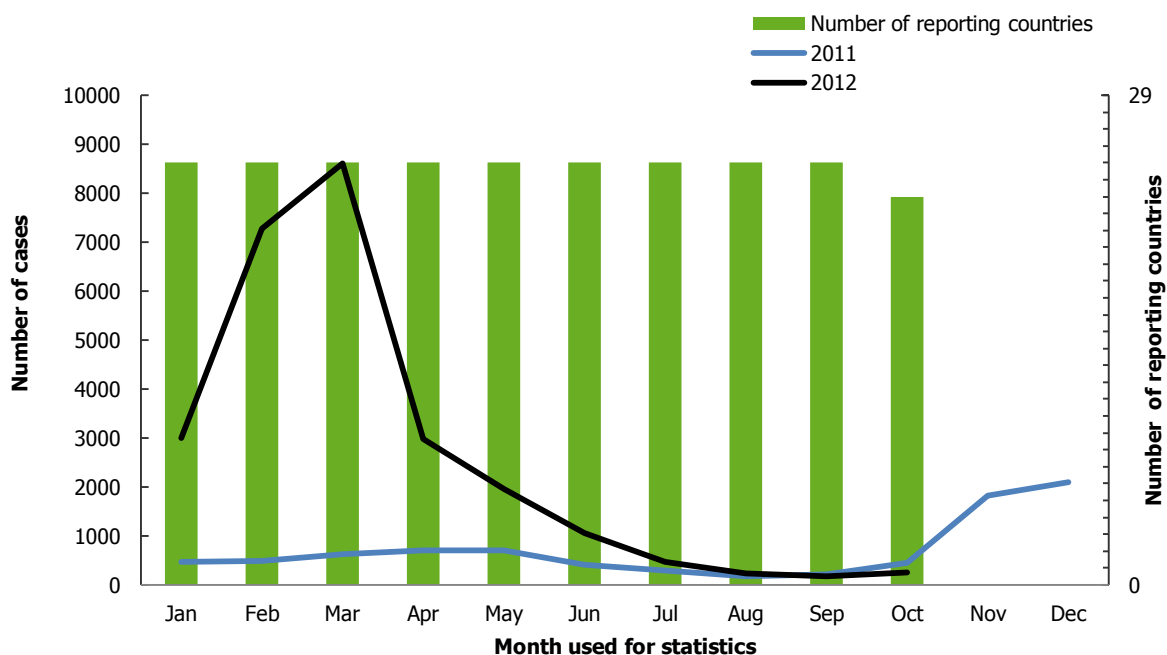
For maps relating to measles cases and notification rates in 2011, see:  
[http://ecdc.europa.eu/en/activities/surveillance/euvac/data/Pages/measles\\_maps.aspx](http://ecdc.europa.eu/en/activities/surveillance/euvac/data/Pages/measles_maps.aspx)

# Rubella

## Enhanced surveillance data

The enhanced rubella surveillance data were retrieved from the European Surveillance System (TESSy) on 3 December 2012 and the analysis covers the 12-month period from November 2011 to October 2012. Twenty-two countries reported case-based data for the entire period, Italy did not report data between January and October, and Austria and Slovenia did not report for October. Belgium, France and Germany do not have rubella surveillance systems with national coverage. An overview of the number of cases and notification rates in the past 12 months is shown in Table 2. Poland and Romania accounted for 99% of the reported cases.

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



*No surveillance system in place in Belgium, France, and Germany.*

**Table 2. Number of rubella cases by month and notifications rates (cases per million), November 2011– October 2012, EU/EEA countries**

Country	2011		2012										Total cases	Cases per million
	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct		
Austria	1	0	2	1	0	1	2	0	0	3	0	NR	10	1.2
Belgium	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	-
Bulgaria	1	1	1	2	4	1	2	2	1	0	0	1	16	2.1
Cyprus	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
Czech Republic	2	0	2	0	2	1	1	0	0	1	0	0	9	0.9
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	1	0	0	2	1	5	0	0	0	0	0	0	9	0.9
Iceland	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
Ireland	0	0	0	0	2	0	4	2	0	1	0	0	9	2.0
Italy	8	4	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	12	0.2
Latvia	0	0	0	0	0	0	3	2	0	2	1	0	8	3.6
Lithuania	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
Luxembourg	0	0	0	0	1	0	0	0	0	0	0	0	1	2.0
Malta	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
Netherlands	0	0	0	0	0	1	0	0	0	0	0	0	1	0.1
Norway	0	0	0	1	0	0	0	0	0	0	0	0	1	0.2
Poland	205	186	174	279	695	1076	1032	732	405	211	169	239	5403	141.0
Portugal	0	0	0	0	0	0	0	1	0	0	1	0	2	0.2
Romania	1596	1905	2806	6965	7870	1874	899	299	34	9	4	11	24272	1130.0
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	NR	0	0.0
Spain	0	2	4	12	15	13	8	2	2	0	0	0	58	1.3
Sweden	1	0	0	0	0	1	2	15	29	3	0	0	51	5.4
United Kingdom	0	0	3	19	17	9	8	5	4	0	0	0	65	5.4
<b>Total</b>	<b>1815</b>	<b>2098</b>	<b>2992</b>	<b>7281</b>	<b>8607</b>	<b>2982</b>	<b>1961</b>	<b>1060</b>	<b>475</b>	<b>230</b>	<b>175</b>	<b>251</b>	<b>29927</b>	<b>85.5</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 number of rubella cases in previous years, see:

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

## Epidemic intelligence

No new outbreaks of measles or rubella were detected in the EU Member States since the previous 'Measles and Rubella monitoring report'.

## Publications

### Measles virus genotyping an important tool in measles outbreak investigation in Norway, 2011

Vainio K, Steen TW, Arnesen TM, Rønning K, Ånestad G, Dudman S. Measles virus genotyping an important tool in measles outbreak investigation in Norway, 2011. *Euro Surveill.* 2012;17(50):pii=20340. Available from: <http://www.eurosurveillance.org/ViewArticle.aspx?ArticleId=20340>

This study describes 33 laboratory-confirmed cases of measles that occurred in Norway in 2011 and highlights the importance of genetic characterisation when investigating measles outbreaks in countries approaching measles elimination. Epidemiological data and genotyping revealed that the measles cases originated from eight separate importations which resulted in four outbreaks and four sporadic cases. Twelve cases were infected in healthcare settings, emphasising the importance of vaccinating healthcare workers and implementing infection control measures in waiting rooms and wards. It serves as an example of the level of outbreak investigation and control measures expected by EU/EEA countries during the measles elimination phase and thereafter.

## Innovations and new technologies

### New vaccine administration technique

Researchers at Georgia Institute of Technology (US) have developed a new technique for delivering measles vaccine with a potential for simplifying mass administration during supplementary immunisation activities (SIA) for global measles eradication. Freeze-dried stabilised measles vaccine was placed on stainless steel micro-needles attached to a patch. The vaccine particles are absorbed when the patch is attached to the skin. The technique induces the same immune response as conventionally injected liquid vaccine when tested on rats.

Read more: [Measles Vaccine Using A Microneedle Patch Could Boost Immunization Programs](#)

### Online immunisation scheduler

An online tool helps US vaccine providers and parents to schedule childhood vaccinations.

The Catch-Up Immunization Scheduler application, which was previously available as a download application, has been redesigned as an online tool. Researchers have separated the information that are likely to change over time and housed it in a database. This facilitates updates when recommendations change. Housing the rules in a database could also allow the system to be used in other countries where vaccination schedules differ from those in the United States.

Read more: [Online Tool Creates Personalized Catch-Up Immunization Schedules for Missed Childhood Vaccinations](#)

Try the tool: [Catch-Up Immunization Scheduler](#)



## 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

- 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.
- 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 3 December 2012. Later retrievals of data may result in slightly different numbers as countries have the possibility to update data in the European Surveillance System retrospectively.
- Starting with the September 2012 issue ECDC has been reporting measles and rubella notification rates per one million population, and not as previously per thousand population. The reason is that the WHO incidence indicator to monitor progress toward elimination is number of confirmed cases per one million population 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](#)