

SURVEILLANCE REPORT

Measles and rubella monitoring

March 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. The elimination of measles requires sustained uptake above 95% with two doses of MMR vaccine across all countries and population groups.

Main developments

Measles

- The 29 contributing EU and EEA countries reported 8 032 cases of measles during the last 12-month period from February 2012 to January 2013.
- Luxembourg did not report for the last two months of 2012 and for January 2013. Belgium and France did not report data for January 2013.
- France, Italy, Romania, Spain and the United Kingdom accounted for 94% of the cases over the last 12-month period.
- Thirteen 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 EU/EEA was substantially lower in 2012 than in 2011, but the overall notification rate (15.8 cases per million population) continues to exceed the elimination target of less than one case per million.
- Of the 7 613 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 during the period February 2012 to January 2013, but seven cases were complicated by acute measles encephalitis.
- Ongoing measles outbreaks are reported from the United Kingdom and Sweden.

Rubella

- The 26 EU and EEA countries contributing to enhanced rubella surveillance together reported 26 129 cases during the last 12-month period from February 2012 to January 2013.
- Luxembourg did not report for the last two months of 2012 and for January 2013, and Italy did not report for the entire period from February 2012 to January 2013.
- Poland and Romania accounted for 99% of all reported rubella cases in the 12-month period.

Measles

Surveillance data

The enhanced measles surveillance data were retrieved from The European Surveillance System (TESSy) on 26 February 2013 and the analysis covers the 12-month period from February 2012 to January 2013. All twenty-nine countries reported case-based data for the period. Data were missing from Luxembourg for the last two months of 2012 and for January 2013. Belgium and France did not report data for January 2013.

The number of cases and notification rates for the past 12 months are shown in Table 1. Reported cases in 2012 were much lower than for the same period in 2011, and there was no significant increase at the EU/EEA level during the peak transmission season for measles from February to June (Figure 1). The highest notification rate was among infants under one year of age (230.5 cases per million population), followed by children aged between one and four years (99.5 cases per million population) (Figure 2).

Vaccination status was known for 7 613 (95%) of the 8 032 reported cases. Of these, 83% (6 290 cases) were unvaccinated, 13% (953) had received one dose of measles vaccine, 5% (354) had received two or more doses, and 0.2% (16) 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, the group targeted by routine childhood vaccination programmes, 77% of the cases were unvaccinated.

Seven cases were complicated by acute measles encephalitis over the last 12 months. No measles-related deaths were reported.

Figure 1. Number of measles cases in 2012 and 2013 and number of EU/EEA countries reporting, by month, 2013

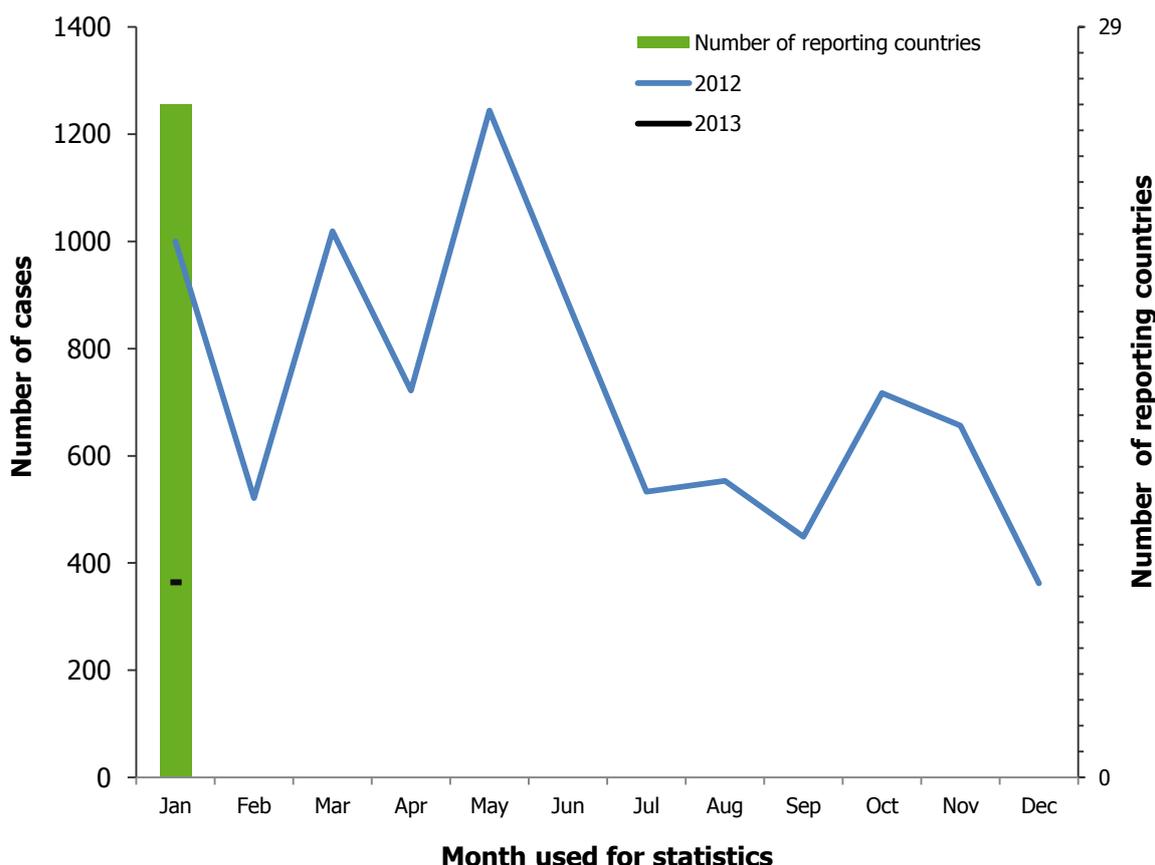


Table 1. Number of measles cases by month and notifications rates (cases per million), February 2012 – January 2013, EU/EEA countries

| Country | 2012 | | | | | | | | | | | | 2013 | |
|--------------|------------|-------------|------------|-------------|------------|------------|------------|------------|------------|------------|------------|------------|-------------|-------------------|
| | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Jan | Total cases | Cases per million |
| Austria | 1 | 0 | 2 | 2 | 4 | 1 | 3 | 1 | 2 | 0 | 0 | 1 | 17 | 2.0 |
| Belgium | 6 | 3 | 9 | 4 | 9 | 5 | 0 | 1 | 0 | 0 | 0 | NR | 37 | 3.4 |
| Bulgaria | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0.1 |
| Cyprus | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1.2 |
| Czech Rep. | 2 | 0 | 2 | 7 | 4 | 1 | 2 | 1 | 0 | 0 | 0 | 0 | 19 | 1.8 |
| Denmark | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 4 | 0.7 |
| Estonia | 0 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 4 | 3.0 |
| Finland | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 4 | 0.7 |
| France | 123 | 140 | 110 | 103 | 92 | 75 | 31 | 10 | 25 | 27 | 17 | NR | 753 | 11.6 |
| Germany | 18 | 7 | 18 | 56 | 17 | 19 | 11 | 3 | 3 | 5 | 6 | 8 | 171 | 2.1 |
| Greece | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 2 | 5 | 0.4 |
| Hungary | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0.2 |
| Iceland | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0 |
| Ireland | 4 | 4 | 2 | 53 | 18 | 3 | 2 | 9 | 9 | 1 | 0 | 1 | 106 | 23.7 |
| Italy | 122 | 89 | 100 | 105 | 59 | 28 | 6 | 13 | 74 | 10 | 13 | 5 | 624 | 10.3 |
| Latvia | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 1.3 |
| Lithuania | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0.6 |
| Luxembourg | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | NR | NR | NR | 2 | 3.9 |
| Malta | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Netherlands | 0 | 1 | 4 | 0 | 1 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 10 | 0.6 |
| Norway | 0 | 0 | 1 | 0 | 0 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 4 | 0.8 |
| Poland | 1 | 1 | 13 | 11 | 9 | 4 | 6 | 1 | 2 | 4 | 8 | 4 | 64 | 1.7 |
| Portugal | 0 | 0 | 1 | 4 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 6 | 0.6 |
| Romania | 110 | 647 | 317 | 620 | 338 | 157 | 267 | 182 | 371 | 336 | 201 | 208 | 3754 | 175.3 |
| Slovakia | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0.2 |
| Slovenia | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0.5 |
| Spain | 69 | 89 | 65 | 59 | 55 | 30 | 7 | 4 | 8 | 0 | 0 | 4 | 390 | 8.5 |
| Sweden | 14 | 4 | 4 | 1 | 0 | 1 | 1 | 1 | 1 | 0 | 1 | 4 | 32 | 3.4 |
| UK | 47 | 31 | 66 | 216 | 278 | 206 | 210 | 221 | 222 | 273 | 115 | 130 | 2015 | 32.2 |
| Total | 521 | 1019 | 722 | 1244 | 886 | 533 | 553 | 449 | 717 | 656 | 362 | 370 | 8032 | 15.8 |

NR: Data not reported

Notification rates were calculated using the most recent population estimates available from Eurostat (2011). Countries with a notification rate ≥ 1 per million population over the last 12 months are highlighted in green. Notification rate per million population is one of several indicators used for monitoring progress towards elimination of measles. The target is 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

Figure 2. Measles notification rates (cases per million) by age group, February 2012 – January 2013, EU/EEA countries (n=8 004 cases with known age)

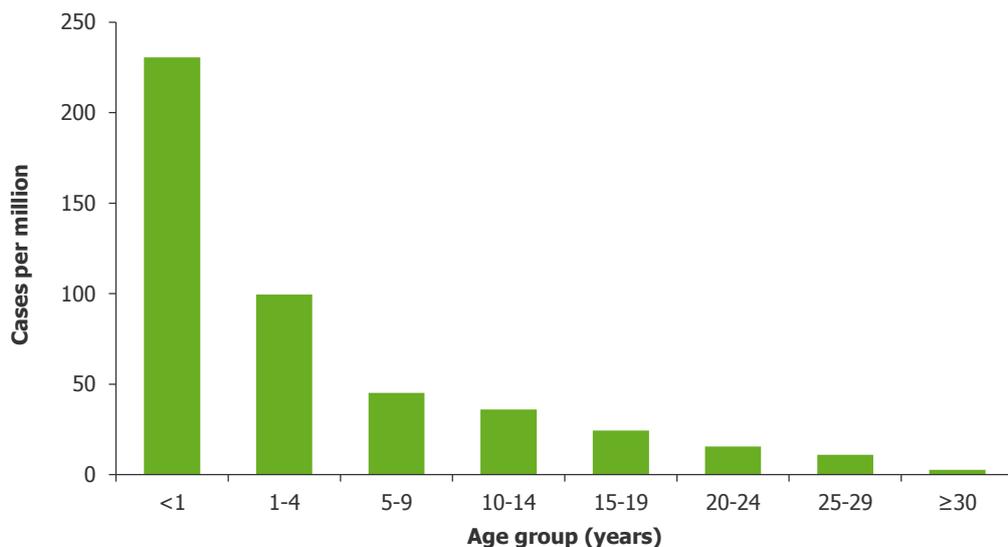


Figure 3. Proportion of vaccination status among measles cases by age group, February 2012 – January 2013, EU/EEA countries (n=8 004 cases with known age)

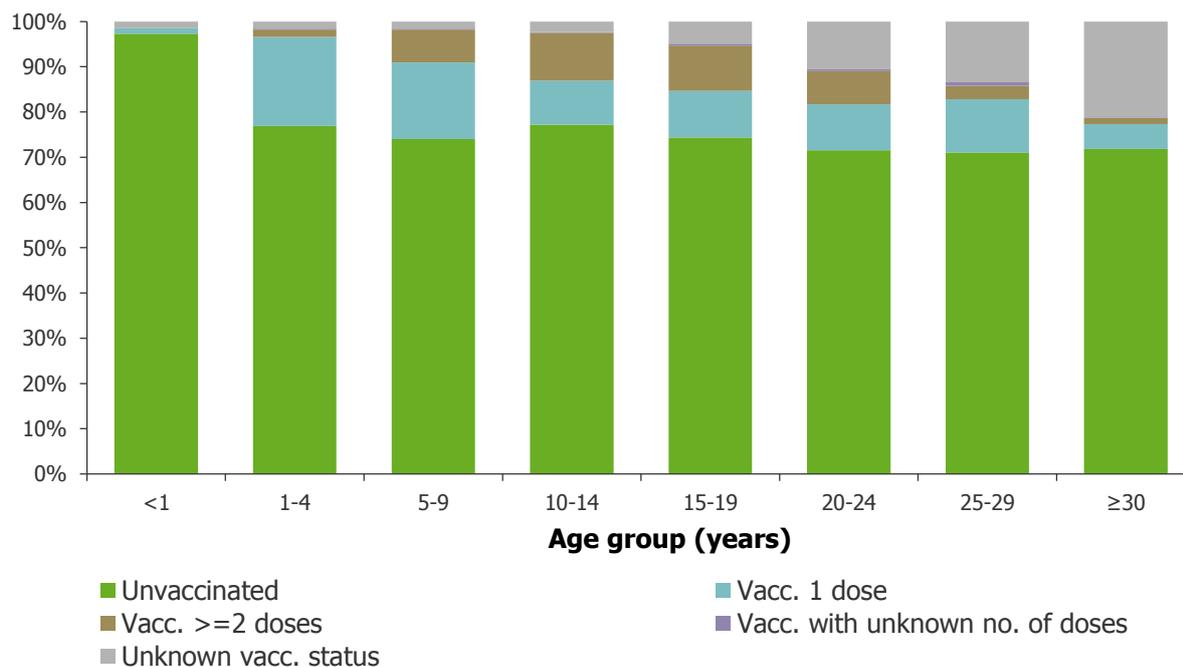
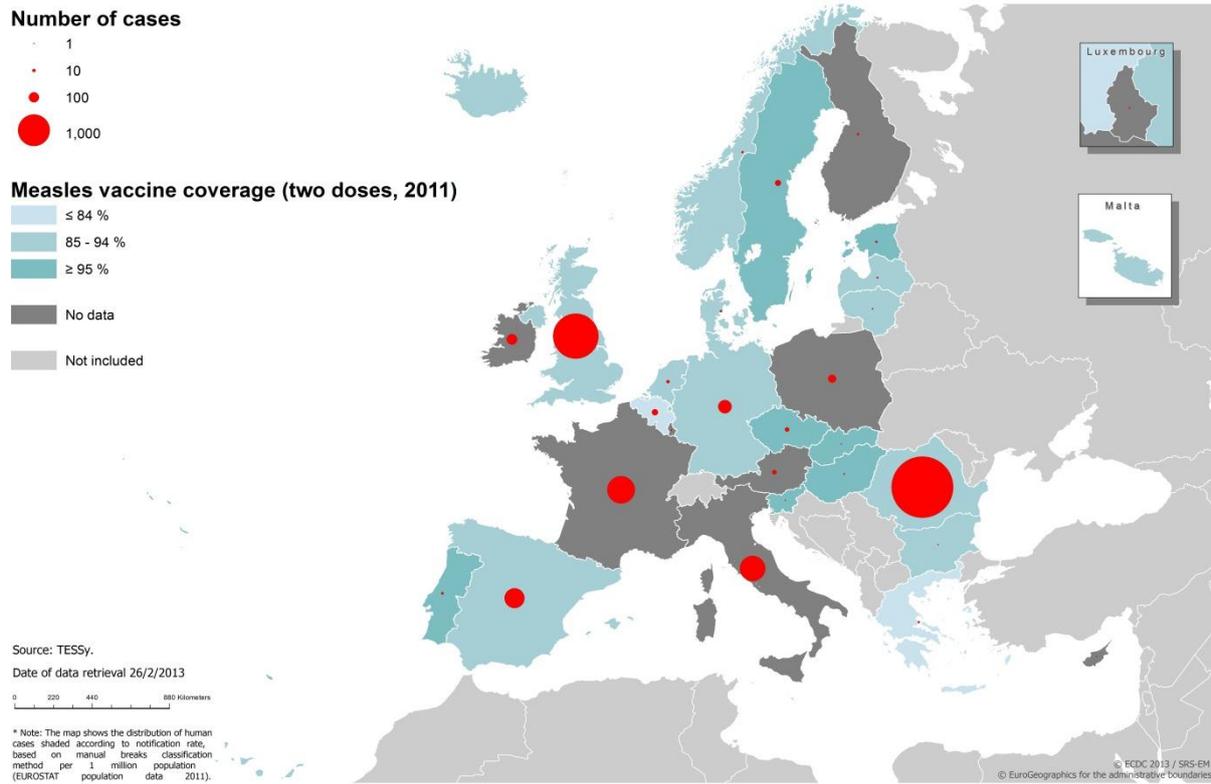
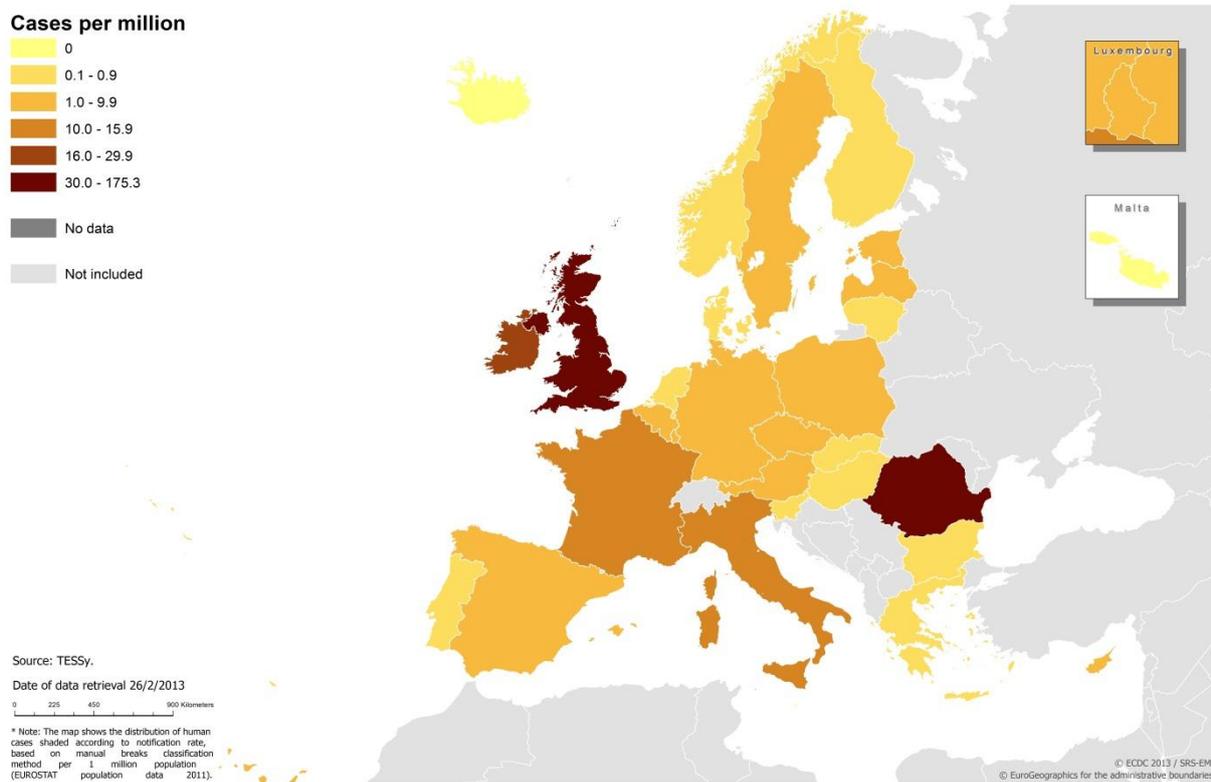


Figure 4. Number of measles cases by country, February 2012 – January 2013, EU/EEA countries (n=8 032), and two-dose measles vaccine coverage* (2011 CISID), EU/EEA countries



* 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, February 2012 – January 2013, EU/EEA countries (n=8 032)



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

Rubella

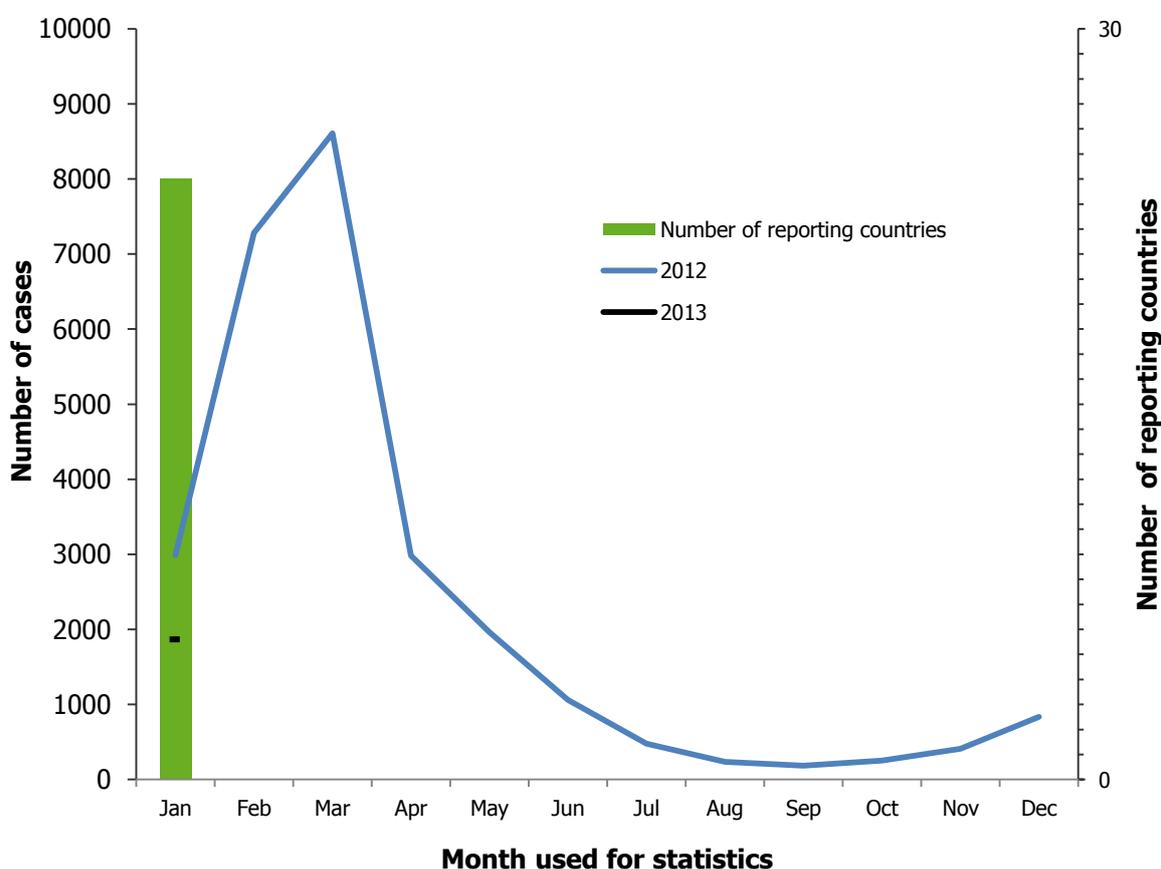
Enhanced surveillance data

The enhanced rubella surveillance data were retrieved from The European Surveillance System (TESSy) on 26 February 2013. The analysis covers the 12-month period from February 2012 to January 2013. Of the 26 contributing countries, 24 reported data for the entire period. Luxembourg did not report for the last two months of 2012 and for January 2013, and Italy did not report for the entire period.

Three EU countries (Belgium, France and Germany) do not operate rubella surveillance systems with national coverage and do not contribute to the enhanced surveillance. Case numbers and notification rates for the past 12 months are shown in Table 2. Poland and Romania accounted for 99% of all reported cases.

The highest notification rate (934.9 cases per million population) was among adolescents aged 15–19 years (Figure 7). Among the case-based reports, 40 per cent of cases aged 15–44 years were females.

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



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), February 2012 – January 2013, EU/EEA countries

| Country | 2012 | | | | | | | | | | | | 2013 | |
|----------------|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-------------|-------------------|
| | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Jan | Total cases | Cases per million |
| Austria | 1 | 0 | 1 | 2 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 7 | 0.8 |
| Belgium | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | - |
| Bulgaria | 2 | 4 | 1 | 2 | 2 | 1 | 0 | 0 | 1 | 3 | 0 | 1 | 17 | 2.3 |
| Cyprus | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Czech Republic | 0 | 2 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 5 | 0.5 |
| Denmark | 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 |
| Finland | 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 | - |

| Country | 2012 | | | | | | | | | | | | 2013 | |
|----------------|-------------|-------------|-------------|-------------|-------------|------------|------------|------------|------------|------------|------------|-------------|--------------|-------------------|
| | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Jan | Total cases | Cases per million |
| 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 |
| Hungary | 2 | 1 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 0.8 |
| Iceland | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ireland | 0 | 2 | 0 | 4 | 2 | 0 | 1 | 0 | 0 | 2 | 0 | 0 | 11 | 2.5 |
| Italy | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | - |
| Latvia | 0 | 0 | 0 | 3 | 2 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 8 | 3.6 |
| Lithuania | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Luxembourg | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | NR | NR | NR | 1 | 2.0 |
| Malta | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Netherlands | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0.1 |
| Norway | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 0.4 |
| Poland | 279 | 695 | 1076 | 1032 | 732 | 407 | 214 | 178 | 239 | 402 | 831 | 1833 | 7918 | 207.3 |
| Portugal | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 3 | 0.3 |
| Romania | 6965 | 7870 | 1874 | 899 | 299 | 34 | 9 | 4 | 11 | 1 | 0 | 10 | 17976 | 839.5 |
| Slovakia | 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 |
| Spain | 12 | 15 | 13 | 8 | 2 | 2 | 2 | 0 | 0 | 0 | 1 | 0 | 55 | 1.2 |
| Sweden | 0 | 0 | 1 | 2 | 15 | 29 | 3 | 0 | 0 | 0 | 0 | 0 | 50 | 5.3 |
| United Kingdom | 19 | 17 | 10 | 7 | 5 | 4 | 0 | 0 | 0 | 2 | 2 | 1 | 67 | 1.1 |
| Total | 7281 | 8607 | 2983 | 1960 | 1060 | 477 | 235 | 184 | 251 | 411 | 834 | 1846 | 26129 | 90.3 |

* The marked increase in incidence from 81.5 per million (December 2011 – November 2012; see January 2013 surveillance report) to 90.3 per million (February 2012 – January 2013) 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 ≥ 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 the 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, February 2012 – January 2013, EU/EEA countries (n=26 075 cases with known age)

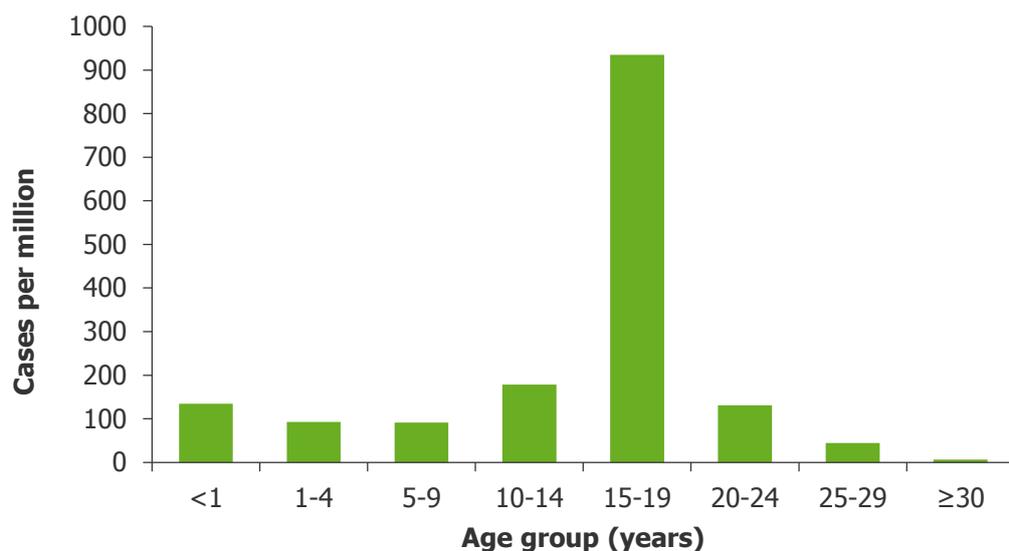
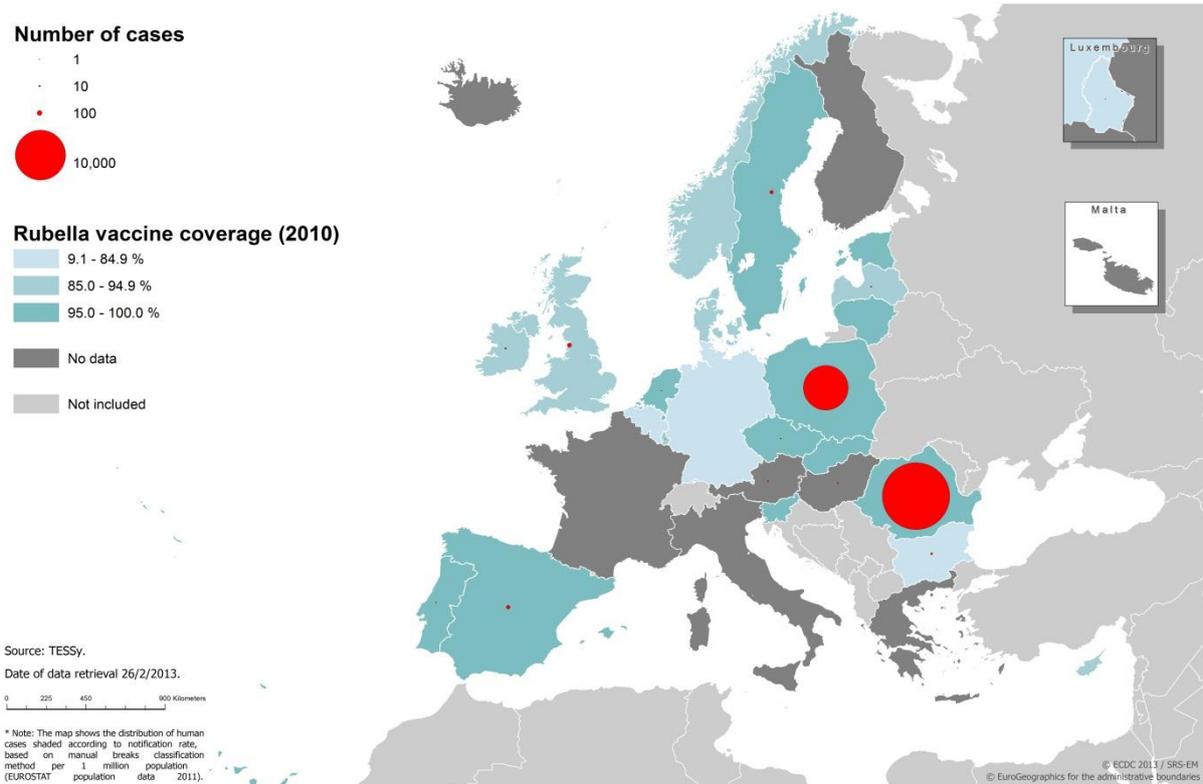
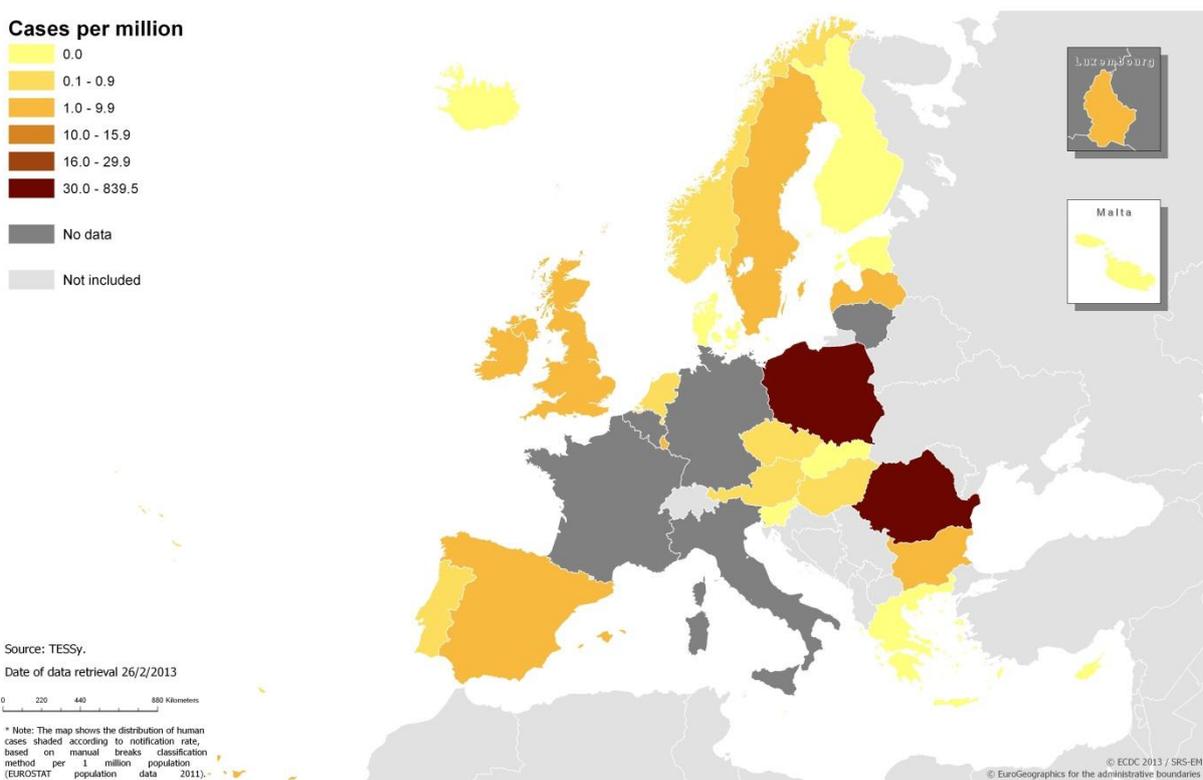


Figure 8. Number of rubella cases by country, February 2012 – January 2013, EU/EEA countries (n=26 129), and two-dose rubella vaccine coverage* (2010 CISID), EU/EEA countries



* 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, February 2012 – January 2013, EU/EEA countries (n=26 129)



Epidemic intelligence

Measles

United Kingdom

The latest figures for the ongoing measles outbreak in the North-East region of England were published by the Health Protection Agency (HPA) on 18 March 2013 and indicate that the outbreak continues to spread in the region. Since the beginning of September 2012, when the numbers started increasing, 104 confirmed cases and 93 suspected cases of measles have been reported. The majority of cases have been unvaccinated school children and young adults, with 41% of the affected in the 10–19-year-old age group.

Nationally, the HPA is seeing increasing reports of measles. During 2012, there were 2 016 laboratory-confirmed cases of measles (provisional data), the highest annual total since 1994. The measles cases identified during 2012 have been associated with prolonged outbreaks in Merseyside and Sussex, as well as several smaller outbreaks in travelling communities across England and Wales.

Sweden

In February 2013, the [Swedish Institute for Infectious Disease Control](#) (SMI) reported two ongoing outbreaks in Uppsala and Stockholm counties, with a dozen confirmed cases. The index case was a Swedish resident returning from abroad.

In Stockholm, the last case was identified on 2 February 2013. [In Uppsala](#), the outbreak is still ongoing. Contact tracing is being carried out. Several of the measles cases in Uppsala county required hospital treatment.

Rubella

No outbreaks of rubella were detected in EU Member States since the last bulletin.

Country report – United Kingdom

Measles and rubella surveillance in England

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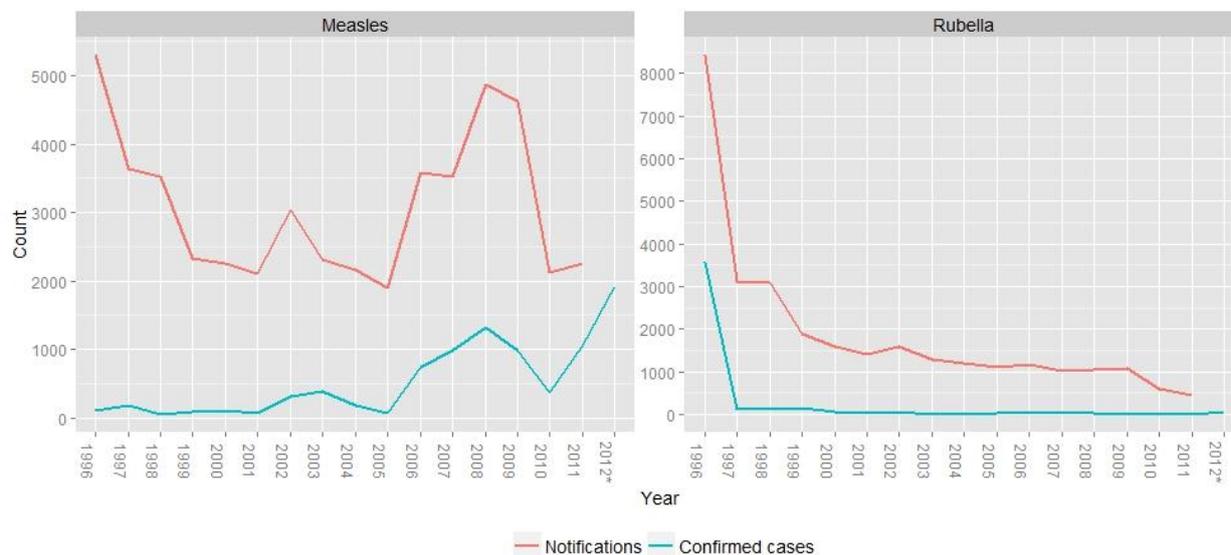
Background

In England, routine measles vaccination was introduced in 1968 but uptake rates were low until the introduction of the combined measles, mumps and rubella vaccine (MMR) in 1988. Confirmed cases of all three diseases are relatively rare because of high MMR coverage. The MMR vaccine is part of the routine immunisation schedule in England. The first dose is given from 13 months of age and a second dose is normally offered between three years four months and five years of age. Uptake has varied over the years, reaching a low of 80% coverage at 24 months of age in 2003/2004 and reaching a peak of approximately 92% in 2011^{1,2}.

In England, the statutory requirement for the notification of certain infectious diseases started at the end of the 19th century. Since 1899, notification of diseases such as cholera, diphtheria, smallpox and typhoid has been a statutory requirement. The list of diseases has been increased over the decades and now stands at about 30. Registered medical practitioners must notify the relevant authorities of any suspected case of measles or rubella (as well as a number of other diseases).

Figure 1-1 shows the number of notifications and confirmed cases of measles and rubella in England. There are very few confirmed cases of rubella. Between 2002 and 2011, only 2.3% of notifications of rubella in England have been confirmed. However, confirmed cases increased in 2012 with outbreaks in the south-east of England, due to importation and unvaccinated cases³. Measles in comparison shows significant variation in both notifications and confirmed cases annually, reflecting a number of measles outbreaks across the country⁴. Recent outbreaks of measles and rubella, combined with an increase in mumps outbreaks mainly in educational settings⁵, emphasise the need for a timely, specific and sensitive surveillance system for measles, mumps and rubella to inform public health action.

Figure 1-1: Number of notifications and confirmed cases of measles and rubella in England, 1996 – 2012



* Provisional data, notification data for 2012 had not been released at the time of writing

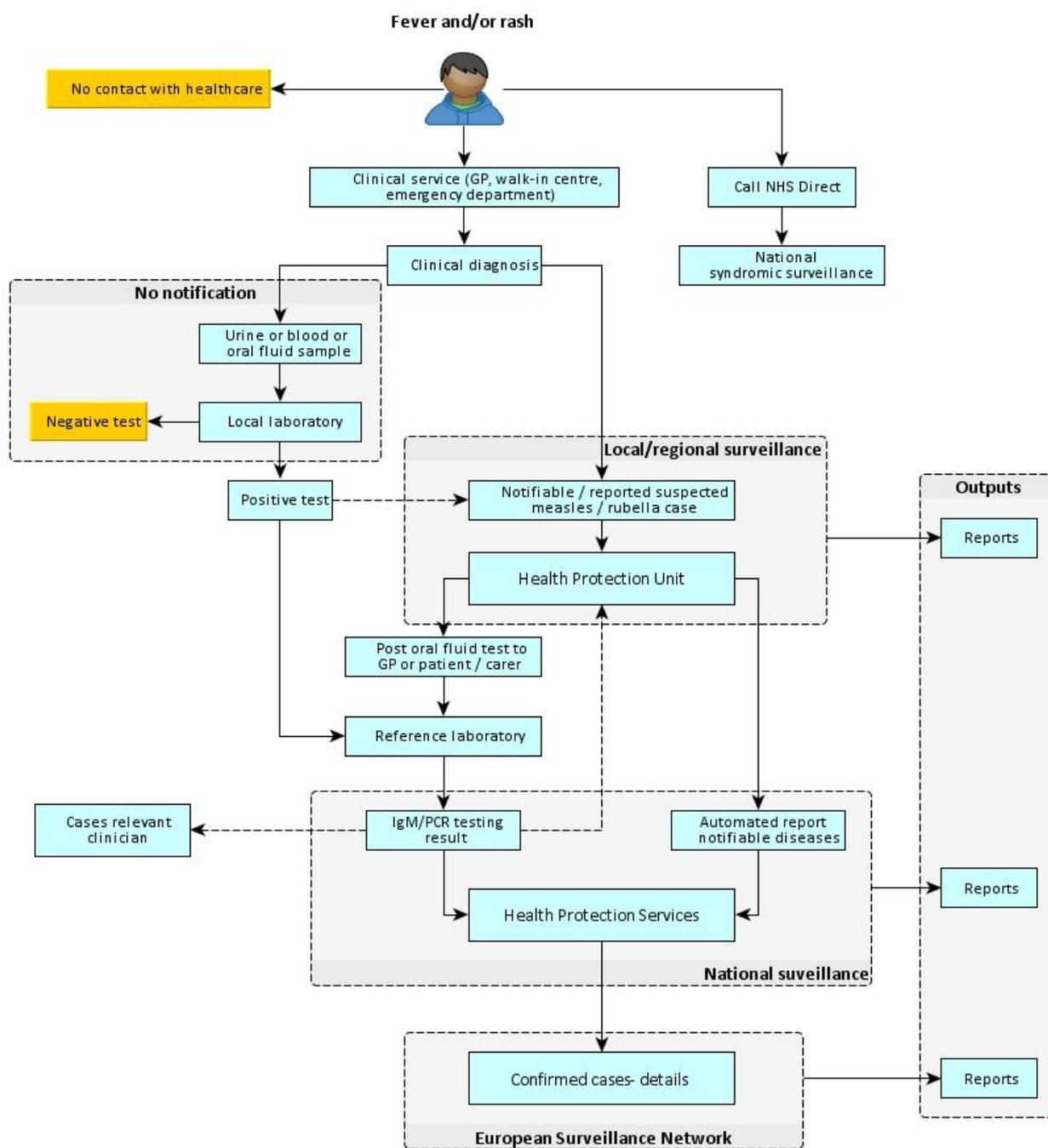
Measles and rubella surveillance system

Surveillance of infectious diseases in England is one of the primary functions of the Health Protection Agency (HPA) (and will continue when the HPA becomes part of Public Health England on 1 April 2013). The surveillance system in England is based on a two-step approach involving case ascertainment and laboratory confirmation. Case ascertainment requires an up-to-date, appropriate case definition (see Box) and the reporting of cases to the HPA.

Under the Health Protection (Notifications) Regulations 2010⁶, doctors (registered medical practitioners) in England and Wales must notify the 'proper officer' of the relevant local authority (usually staff of the local Health Protection Unit [HPU]) of suspected cases of notifiable diseases (including measles and rubella), or if there is a patient with an infection which presents or could present significant harm to human health; or a patient who is contaminated in a manner which presents or could present significant harm to human health. Reporting by other clinicians, e.g. nurses, is encouraged but not covered by this legislation⁶. Notifiable diseases include a number of diseases which contain fever and rash in their clinical features, including meningococcal disease, scarlet fever, measles and rubella. A minimum dataset is included within the regulations. In addition, the 2010 regulations introduced the notification of laboratory-confirmed disease. All laboratories in England notify the HPA of the confirmation of a notifiable organism, including measles and rubella, as soon as is practicable, orally and within seven days in writing.

Figure 2-1 shows the process of case ascertainment and confirmation for measles and rubella in England. Although surveillance in England is not exactly the same for each infectious disease, many follow this process.

Figure 2-1: Fever and rash surveillance pathway for measles and rubella, England⁷



Box: Measles and rubella case definitions^{7,8}

Suspected case of measles:

- Any person in whom a clinician suspects measles infection,
- or
- Any person with fever and maculopapular rash (i.e. non-vesicular) and one of the following: cough or coryza (runny nose) or conjunctivitis (red eyes).

Confirmed case of measles:

- Measles IgM positive in blood or oral fluid in the absence of a history of recent vaccination
- Confirmed wild measles RNA positive on any clinical specimen.

Suspected case of rubella:

- Any person in whom a clinician suspects rubella infection,
- or
- Any person with fever and maculopapular rash (i.e. non-vesicular) and cervical, suboccipital or postauricular adenopathy or arthralgia/arthritis.

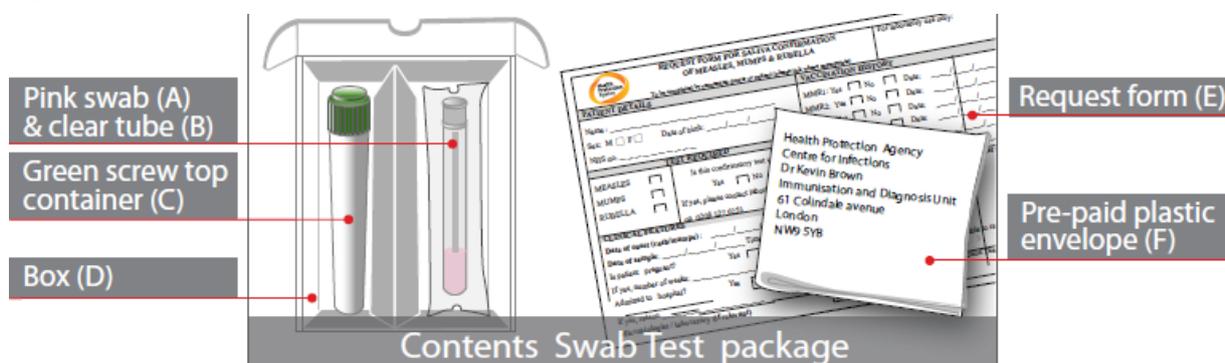
Confirmed case of rubella:

- Rubella IgM positive in blood or oral fluid in the absence of a history of recent vaccination.

The measles and rubella surveillance process is dependent on a person with fever and/or rash attending a clinical service. Once a person with fever and/or rash receives a clinical diagnosis of suspected measles or rubella, they should become part of the national surveillance system. Notification to the HPU should be as soon as is reasonable practicable orally and within three days in writing. The HPU may also receive a report of a suspected case of measles or rubella from other clinicians (e.g. nurses) and if this is considered a credible source, the case will be included within the system. Alternatively, further assessment by a clinician will be requested. Following reporting/notification, the HPU collects appropriate information, undertakes risk assessment for the case and the public health management of the case.

The local HPU will enter case details on the standard case management database system, HPZone. This system also enables automated reporting of notifiable diseases to the HPA national surveillance team. HPUs send an oral fluid swab kit to either the suspected case or the general practitioner (family physician) of a suspected case (Figure 3-1). This kit is designed for use by the patient and is posted directly to the national virus reference laboratory for IgM/IgG and RNA testing. Test results are sent to both the relevant clinician and Health Protection Services nationally and locally. Health Protection Services therefore receives and collates reported cases with a negative result and positive cases and will also receive clinical/epidemiological information from HPUs on confirmed cases. Health Protection Services is then responsible for reporting confirmed cases to the European Surveillance Network (EUVAC-net) on a monthly basis⁷.

Figure 3-1: Oral fluid swab test kit⁹



Case management

Whether a case is reported or formally notified to the HPU, a minimum dataset is recorded as part of the risk assessment of the case (Figure 4-1). This risk assessment enables suspected cases to be classified as likely or unlikely, determining the consequent case management actions.

Minimum dataset

Caller details

- Name, address, designation and contact number

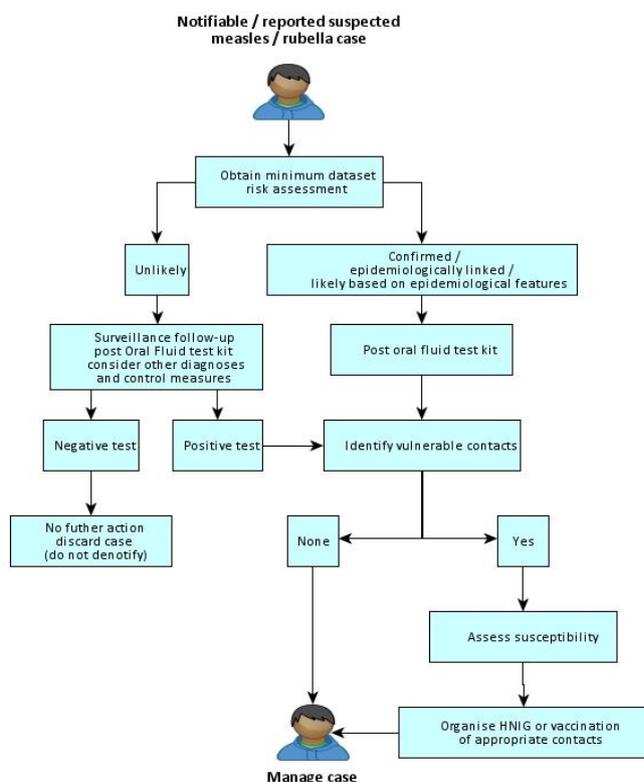
Demographic case details

- Name, date of birth, sex, ethnicity and NHS number
- Address, current residence if not home address
- Contact number and details
- Occupation
- Place of work/education/nursery
- GP name, address and contact number
- Member of hard-to-reach group (e.g. travelling family)

Clinical/epidemiological assessment

- Clinical information (onset date of symptoms)
- Immunisation history
- Contact with confirmed of suspected case
- UK and non-UK travel in previous four weeks
- Context, e.g. high-risk population (e.g. international students, Steiner followers, traveller family)
- Information requested in addition to the routine information collected on all notifiable diseases

Figure 4-1: Case management flow chart and minimum details taken from a case when reported to the HPU⁷



Syndromic surveillance

As part of a suite of tools used by the HPA for syndromic surveillance, there is a 24-hour telephone service, which allows members of the public to contact healthcare professionals for advice on symptoms, known as NHS Direct. Although not currently part of the measles and rubella surveillance system, data is collected and used by the HPA for syndromic surveillance including that of fever and rash.

Strengths/limitations of the system

The surveillance system for measles and rubella allows reporting of suspected cases through a number of channels. However, cases may be missed. Suspected cases may not attend health services and secondly suspected cases may not be reported/notified. Using an agreed clinical case definition which has high specificity and sensitivity (for rubella in England and Wales specificity is 55% and sensitivity 55%¹⁰) may improve case ascertainment. Awareness of these diseases and the requirement to report is regularly communicated to healthcare professionals, particularly during outbreaks. Some suspected cases will be tested for measles/rubella by clinicians without notification or reporting to the HPU. If the laboratory test is positive for measles or rubella, the local HPU will be notified by the local laboratory. Unfortunately those with negative test results are not captured by the surveillance system.

Despite its limitations, the system provides a robust picture of measles and rubella incidence by gathering information at various levels of the patient pathway, providing multiple endpoints for case ascertainment and confirmation.

1. Health Protection Agency. Completed primary courses at two years of age: England and Wales, 1966-1977, England only 1978 onwards. London: HPA. 21 Oct 2011. Available from: www.hpa.org.uk/web/HPAweb&HPAwebStandard/HPAweb_C/1195733819251
2. Health Protection Agency. Health protection report: weekly report. London: HPA. 2012; 6(34). Available from: <http://www.hpa.org.uk/hpr/archives/2012/hpr3412.pdf>
3. Health Protection Agency. Quarterly Vaccine Coverage Data. Available from: www.hpa.org.uk/web/HPAweb&HPAwebStandard/HPAweb_C/1211441442288
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Publications

WHO framework for verifying elimination of measles and rubella

The working group on measles and rubella of the WHO Strategic Advisory Group of Experts on Immunization (SAGE) published revised guidance on how to monitor progress towards the elimination of measles and rubella in the Weekly Epidemiological Review 1 March 2013. The document clarifies and reiterates definitions of terms for elimination, describes the roles and responsibilities of the national and regional verification committees (NVC, RVC), and lists three essential criteria required for verification of elimination:

- Documentation of the interruption of endemic measles, or rubella, virus transmission for a period of at least 36 months from the last known endemic case.
- The presence of a high-quality surveillance system that is sensitive and specific enough to detect imported and import-related cases.
- Genotyping evidence that supports the interruption of endemic transmission.

Review of outbreaks and barriers to MMR vaccination coverage among hard-to-reach populations in European countries

This ECDC report describes health status, vaccination coverage and barriers to vaccination of hard-to-reach populations in Europe. Hard-to-reach populations include migrants and nomadic groups, immigrants, religious groups, anthroposophic groups, complementary medicine users and healthcare workers. The report summarises measles and rubella outbreaks reported in the literature or by national experts, identifies the risk factors and reports on measures taken to control measles outbreaks and prevent further spread. Public health interventions to improve overall uptake and barriers to MMR vaccination within these populations are also described.

The publication is available at the ECDC webpage:

http://ecdc.europa.eu/en/publications/Publications/Forms/ECDC_DispForm.aspx?ID=1053

ECDC Annual Epidemiological Report 2012

The ECDC Annual Epidemiological Report 2012 has been published on the ECDC website. The report, which includes data up to 2011 and has a chapter on vaccine-preventable diseases, is available from:

<http://www.ecdc.europa.eu/en/publications/Publications/Annual-Epidemiological-Report-2012.pdf>

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. For this issue, measles data and rubella data were retrieved on 31 January 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.

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 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](#)