

The following report provides an overview of selected epidemiological characteristics of measles and rubella in the WHO European Region for 2012. The report also provides information on acute flaccid paralysis (AFP) surveillance. The analyses of these diseases are based on cases with disease onset dates during 2012.<sup>1</sup>

## Measles in 2012

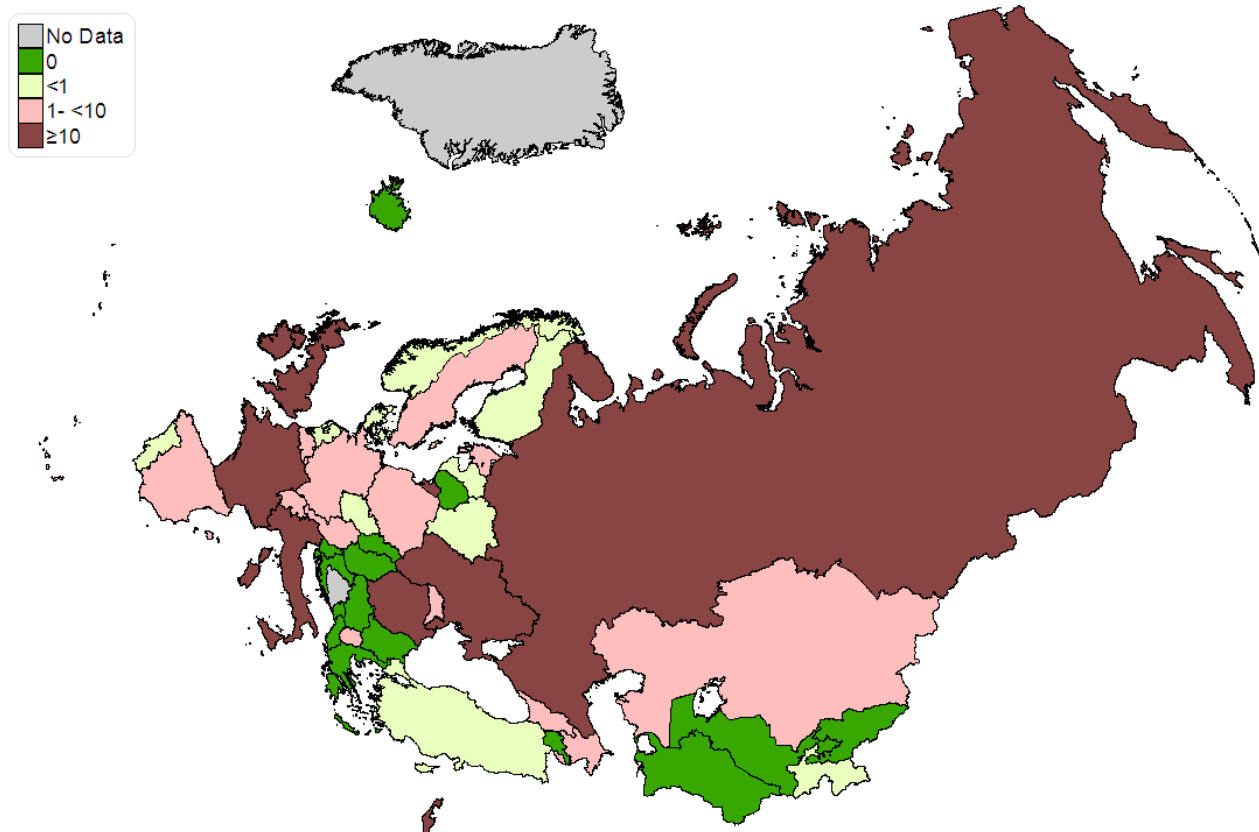
### *Incidence - notifications and laboratory data*

For 2012, there were 23 871 measles cases reported from among 51 (96%) countries of the WHO European Region. Two countries, namely Bosnia and Herzegovina and San Marino, did not submit reports. Overall, completeness of reporting with monthly reports, including zero reporting was 86%. For 33 countries completeness of reporting was 100%. Of the total, 88% of cases (n=20 891) were reported from four countries: Ukraine (n=12 744; 53%), Romania

(n=4271; 18%), the Russian Federation (n=1973; 8%) and the United Kingdom (n=1903; 8%). With 8657 cases of measles, the 27 Member States constituting the European Union contributed to 41% of all cases in the Region. The highest incidence per million population for 2012 was reported in Ukraine (283.3) followed by Romania (199.6). The country-specific incidence of reported measles in the Region is shown in Fig. 1.

Of the total, 9967 (42%) cases were laboratory-confirmed and 2570 (11%) were epidemiologically linked. The remaining 11 334 were classified as clinically compatible. During 2012, a total of 1737 sequences were submitted to the Measles Nucleotide Sequence database (MeaNS)<sup>2</sup> by the countries from the WHO European Region. The genotypes identified in the Region included B3 (n=588), D8 (n=582), D4 (n=552), D9 (n=12) and H1 (n=3).

**Fig. 1.** Incidence of reported measles per million inhabitants, WHO European Region, 2012



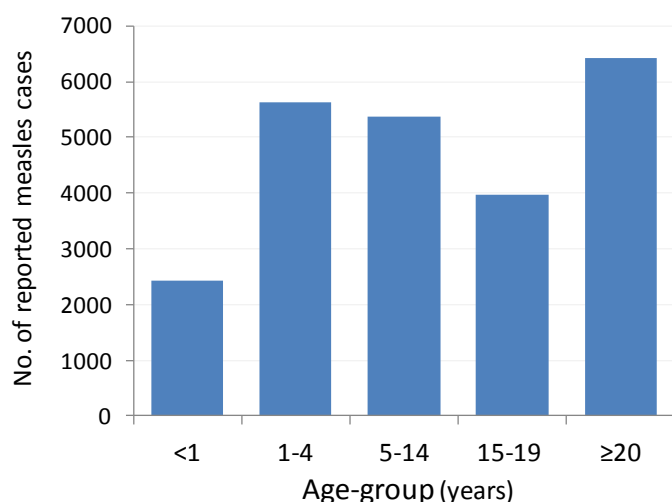
<sup>1</sup> Where these dates were unavailable, cases with the date of notification reported during 2012 were included.

<sup>2</sup> Measles Nucleotide Sequence database (MeaNS). (<http://www.hpa-bioinformatics.org.uk/Measles>).

### Age distribution

The age-group was known in 99.9% (n=23,838) of cases. Overall, 10.2% (n=2439) were aged <1 year, 23.6% (n=5632) were aged 1-4, 13.0% (n=3092) were 5-9 years old, 9.5% (n=2274) were 10-14 years old, 16.6% (n=3967) were 15-19 years old and 27.0% (n=6434) were ≥20 years. Fig. 2 shows the age distribution of reported measles cases in the Region during 2012.

**Fig. 2.** Age distribution of reported measles cases in the WHO European Region, 2012 (n=23,838)



N.B. Discarded cases are not included

### Vaccination status

Vaccination status was known in 20 775 cases (87%). Of these, 11 379 (55%) were unvaccinated and 9396 (45%) were vaccinated with at least one measles-containing vaccine (MCV) dose. Most of the vaccinated cases (79%) in the Region were recorded from Ukraine. In that country, out of 10 901 cases with a known vaccination status, 7448 (68%) were reported as having received at least one MCV dose.

### Hospitalization and mortality

Data on hospitalization status was available for 79% (n=18 863) of all reported measles cases. There were 15 464 reported hospitalised cases in connection with measles, amounting to 82% of all cases with known hospitalisation status. No measles-related deaths were reported during 2012.

### Imported cases

Importation status was known in 34% (n=8031) of cases. Of these, 263 were reported as imported cases, amounting to 3.3% of cases with a known importation status. The remaining cases were believed to have been infected within their own country.

## Rubella in 2012

### Incidence - notifications and laboratory data

For 2012 there were 29 361 rubella cases reported from among 43 (81%) countries of the WHO European Region. No reports were available for 10 countries. Of these, six countries, namely Bosnia and Herzegovina, Italy, Republic of Moldova, San Marino, Serbia and Turkey did not submit reports. In the remaining four countries, namely Belgium, Denmark, France and Germany, notification of rubella from the total population was not mandatory and therefore no reports were available. Overall, completeness of reporting with monthly reports, including zero reporting, was 66%. For 18 countries completeness of reporting was 100%.

Of the total, 92% of cases (n=27 031) were reported from two countries: Romania (n=20 772; 71%) and Poland (n=6259; 21%). The 27 Member States constituting the European Union contributed to 94% (n=27 273) of all cases. The highest incidence per million population for 2012 was reported in Romania (970.8) followed by Poland (163.4). The incidence of reported rubella in the Region is shown in Fig. 3.

Of the total, 6811 (23%) cases were laboratory-confirmed and 15 201 (52%) were epidemiologically linked. The remaining 7349 were classified as clinically compatible. Rubella virus genotypes 1G and 2B were detected.

### Age distribution

The age-group was known in 97% (n=28 362) of cases. Overall, 1.7% (n=470) were aged <1 year, 4.3% (1233) were aged 1-4 years, 4.7% (n=1321) were 5-9 years old, 10.4% (n=2951) were 10-14 years old, 58.0% (n=16 439) were 15-19 years old and 21.0% (n=5948) were ≥20 years. Fig. 4 shows the age distribution of reported rubella cases during 2012.

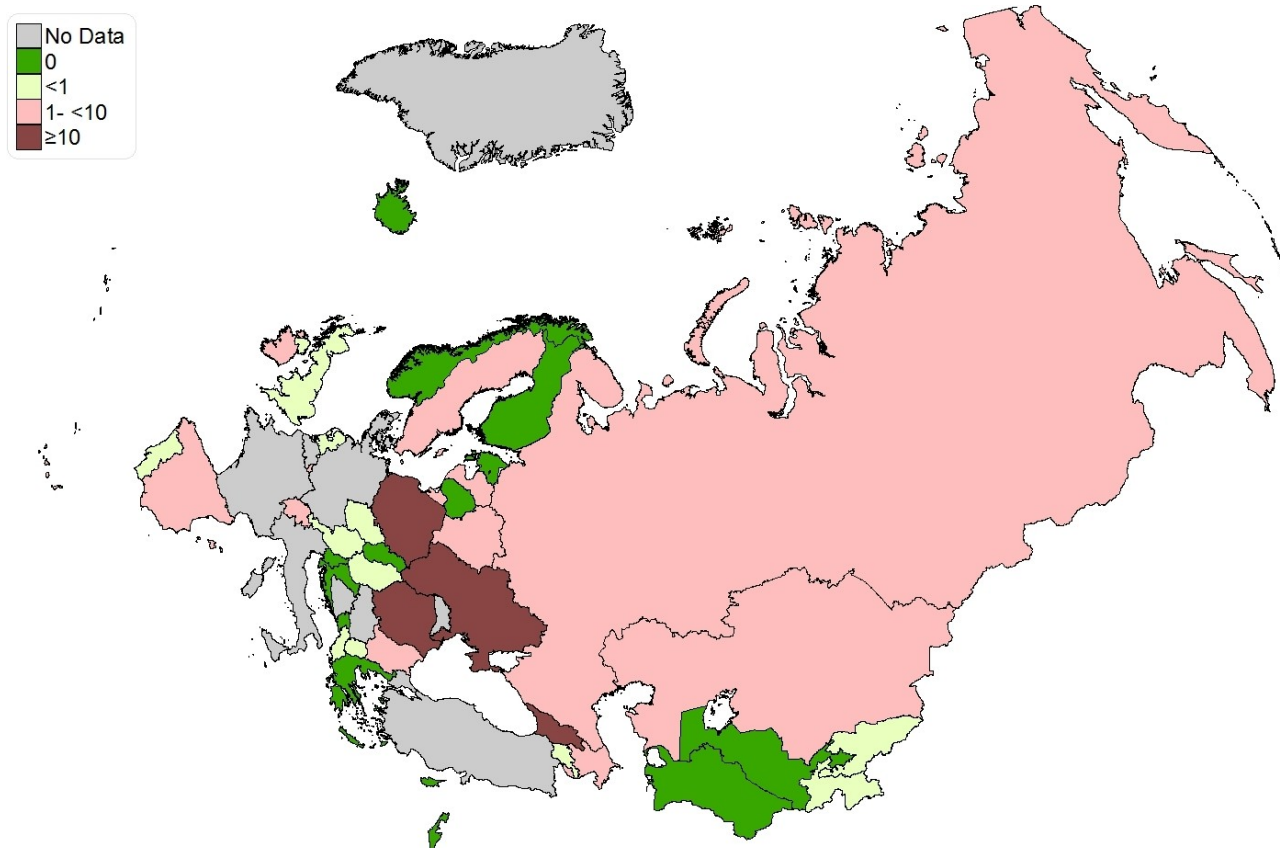
### Vaccination status

Vaccination status was known in 21 762 cases (74%). Of these, 21 115 (97%) were unvaccinated and 647 (3%) were vaccinated with at least one rubella-containing vaccine (RCV) dose.

### Imported cases

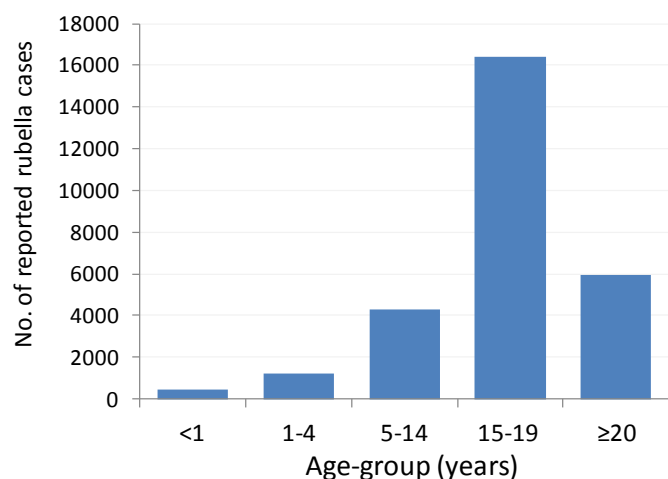
Importation status was known in 72% (n=21 009) of rubella cases. Of these, 31 were reported as imported cases amounting to 0.1% of cases with a known

**Fig. 3.** Incidence of reported rubella per million inhabitants, WHO European Region, 2012



importation status. The remaining cases were believed to have been infected within their own country.

**Fig. 4.** Age-distribution of reported rubella cases in the WHO European Region, 2012 (n=28,362)



N.B. Discarded cases are not included

**Acute flaccid paralysis surveillance**

In 2012, 41 countries of the WHO European Region employed acute flaccid paralysis (AFP) surveillance for polioviruses.<sup>3</sup> During the year, 1552 cases of AFP in

children under 15 years of age were reported from 38 countries; three countries (Andorra, Malta and Slovenia) reported zero cases of AFP. Neither wild polioviruses/circulating vaccine-derived polioviruses (cVDPV) nor polio-compatible cases were reported. Two cases of vaccine-associated paralytic poliomyelitis were reported from Georgia and Ukraine. Ninety-eight cases of AFP were still pending final classification at the time of writing this report.

**Comments**

*Measles and Rubella*

The number of reported measles cases in the European Region decreased by over a third compared with 2011 (n=36 840). This was mostly due to decline in the number of cases from France followed by Italy, Spain and Germany. However, in 2012, outbreaks emerged or transmission intensified in other countries including Romania, Russian Federation, Ukraine and the United Kingdom.

Conversely, there was an increase of over 200% in the number of rubella cases in the Region compared with

<sup>3</sup> Denmark, Germany, Finland, France, Ireland, Iceland, Luxembourg, Monaco, Netherlands, San Marino, Sweden and United Kingdom do not implement AFP surveillance.

the previous year when 9461 cases were reported. Most of the increase was due to the outbreak in Romania. Poland, the Russian Federation and Ukraine also contributed to the observed increase in rubella cases.

Despite the decline in measles cases, the number of cases reported in 2012 remains large for a disease targeted for elimination by 2015. In addition, rubella is still a problem in a few countries. To achieve the goal of elimination in the region, stronger political will and efforts are necessary, particularly in high incidence countries, to improve the vaccination coverage in the population to at least 95%.

Periods of suboptimal vaccination coverage and changes in vaccination schedules over the years most likely explains the accumulation of susceptible populations of different ages. To close these immunity gaps, opportunities for vaccination should be provided to those individuals who are still susceptible to these diseases. In addition, countries are required to conduct high-quality surveillance of measles and rubella as stipulated in the Region's measles and rubella elimination plan.

The large proportion of 68% of cases reported having received at least one MCV in Ukraine may be the result of multiple factors including accuracy of vaccination data. However, this finding warrants a more thorough investigation that is beyond the scope of this report.

The Regional verification process that will start later in 2013 will provide an opportunity for each country to evaluate the sensitivity of measles and rubella surveillance and underpin areas where more efforts to achieve the goal of eliminating these diseases are needed. Detailed information on measles and rubella epidemiology, virological surveillance supported by molecular epidemiology, analysis of vaccinated population cohorts, the quality of surveillance and the sustainability of the National Immunization Programme, are the key components of a standardized assessment of the verification of the interruption of endemic measles and rubella virus transmission. National verification committees for measles and

rubella elimination are being established in the Member States of the Region to compile and submit these data annually. Once established, countries will be requested to provide annual national reports of progress towards measles and rubella elimination.

#### *Acute flaccid paralysis surveillance*

Based on the Regional Certification Commission (RCC) risk assessments in June 2012,<sup>4</sup> six countries (Bosnia and Herzegovina, Georgia, Greece, Romania, Ukraine and Uzbekistan) and two sub-national regions (north Caucasus of the Russian Federation and south-east Turkey), are assessed to be at high risk of transmission in the event of a possible importation of poliovirus. Until these countries are no longer considered at high risk, the same non-polio AFP target rate will apply for them as for countries with importations of wild poliovirus (i.e.  $\geq 2$  per 100 000 population in last 12 months in all sub-national levels - states or provinces with population aged <15 years over 100 000). For the Russian Federation and Turkey these requirements apply to sub-national territories only.

In 2012, of these high-risk countries, only Uzbekistan passed the threshold of non-polio AFP rate with 2.66 per 100 000 population. The non-polio AFP rate for Ukraine and Georgia was close to the target (1.95 and 1.83, respectively). However, the non-polio AFP rate was significantly sub-optimal for Bosnia and Herzegovina (1.29), Greece (1.01) and Romania (0.43). Therefore, significantly more efforts are needed in these countries to further improve the quality of the AFP surveillance in its ability to detect any importation of wild poliovirus.

For many years, AFP rates have been extremely low in a number of Member States of lower risk. The RCC encourages national health authorities and national certification committees to challenge surveillance programmes to either increase the effectiveness of AFP surveillance or to develop and implement alternative surveillance methods capable of providing convincing evidence that wild- or vaccine-derived polioviruses are not circulating in the country.

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<sup>4</sup> Report of the 26th meeting of the Regional Certification Commission ([http://www.euro.who.int/\\_\\_data/assets/pdf\\_file/0005/184739/e96806.pdf](http://www.euro.who.int/__data/assets/pdf_file/0005/184739/e96806.pdf)).