



The following provisional surveillance report on measles in EUVAC.NET countries covers the first quarter of 2006. This report is based on case-based data obtained from participating countries. Incidence rates were based on population statistics for 2006 obtained from the Population Information page on the WHO website for the Computerized Information System for Infectious Diseases (CISID), <http://cisid.who.dk>. In this report, evaluation is based on cases with disease onset dates in 2006. Where this was not available, cases with the date of notification reported in 2006 were included. Minor discrepancies with national data may arise in some countries if these include cases notified in 2006 but with onset dates in 2005.

### Incidence – notifications and laboratory data

During the first quarter of 2006 there were 1,130 case-based measles reports from 17 out of 20 EUVAC.NET participating countries giving a crude incidence of 0.34 per 100,000 inhabitants (Table 1). Compared with the first quarter of 2005, the number of reported cases more than doubled. The reported figure is an underestimation as some countries experiencing outbreaks have not reported all outbreak cases as case-based data until the date of issue of this report.

Table 1. *Reported measles cases and laboratory confirmed cases by country, 1st quarter 2006 (n=1,130)*

Country Completeness of reporting for 1 <sup>st</sup> quarter 2006 in (%)	Total no. of reported cases, (Incidence per 100,000)		Confirmed cases* as a % of total reported	Laboratory confirmed as a % of total confirmed cases*
	1 <sup>st</sup> quarter 2005	1 <sup>st</sup> quarter 2006	1 <sup>st</sup> quarter 2006	1 <sup>st</sup> quarter 2006
Austria (100)	2 (0.02)	12 (0.15)	83%	100%
Belgium (100)	14 (0.14)	2 (0.02)	50%	100%
Croatia (100)	1 (0.02)	0 (0)	-	-
Denmark (100)	0 (0)	11 (0.20)	100%	100%
Finland (100)	0 (0)	0 (0)	-	-
France <sup>1</sup> (100)	-	18 (0.03)	44%	88%
Germany (100)	251 (0.31)	745 (0.90)	71%	54%
Greece <sup>2</sup> (0)	0 (0)	nr -	-	-
Iceland (100)	0 (0)	0 (0)	-	-
Ireland (100)	28 (0.70)	25 (0.59)	20%	100%
Italy <sup>2,3</sup> (0)	55 (0.10)	nr -	-	-
Luxembourg <sup>1</sup> (0)	0 (0)	nr -	-	-
Malta (100)	0 (0)	0 (0)	-	-
The Netherlands (100)	0 (0)	0 (0)	-	-
Norway (100)	0 (0)	0 (0)	-	-
Portugal (100)	0 (0)	1 (0.01)	0%	-
Spain (100)	2 (0.01)	115 (0.27)	100%	93%
Sweden (100)	1 (0.01)	13 (0.14)	92%	100%
Switzerland (100)	47 (0.66)	9 (0.12)	89%	75%
UK (100)	16 (0.03)	179 (0.30)	100%	99%
<b>Total</b>	<b>417 (0.12)</b>	<b>1130 (0.34)</b>	<b>78%</b>	<b>72%</b>

\*These include laboratory confirmed cases and epidemiologically linked cases, nr= no reports <sup>1</sup> Case-based data reported from July 2005 onwards. <sup>2</sup> No 2006 data received till date of issue of this report. <sup>3</sup> Data for 2005 is provisional

### Age distribution

During the first quarter of 2006, measles was reported in both children and adults with most cases in the 1- 4 and 10-14 year age groups (Figure 1). Each of these accounted for 20% of the total cases, followed by the 15-19 and 5-9 year age groups accounting to 16% and 15% respectively. Compared with the first quarter of 2005, there has been a significant 16 % ( $p<0.0001$ ) decline in the reported measles cases in the 1-9 year age group and a 14% significant increase ( $p<0.0001$ ) in the 15-29 year age group suggesting a shift of transmission to older age groups.

Figure 1. Comparison of age distribution in age groups by percentage of total reported measles cases, 1<sup>st</sup> quarter 2005 (n=415) and 2006 (n=1,130)

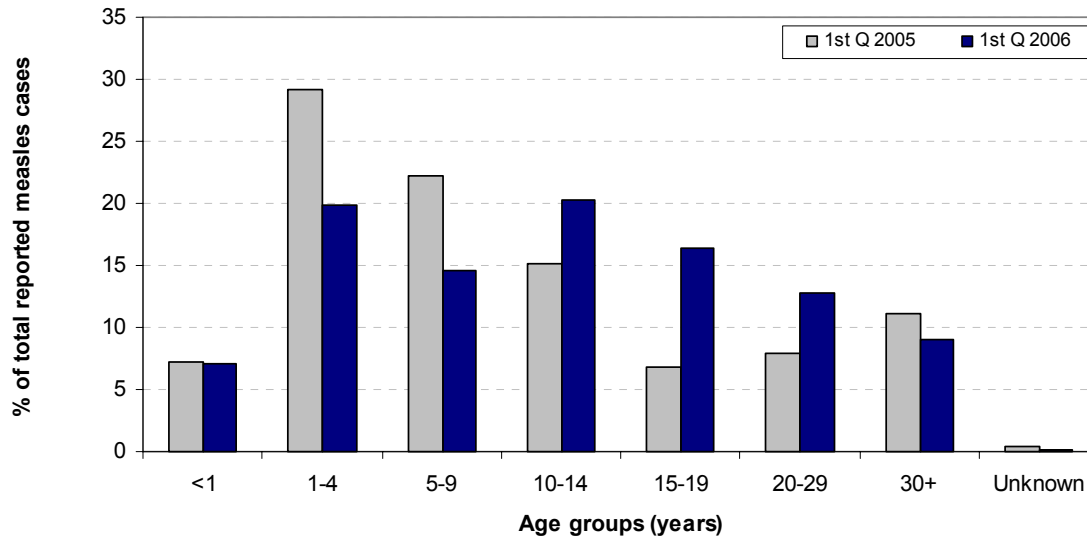


Figure 2. Notified measles cases by age group and confirmation status, 1<sup>st</sup> quarter 2006 (n=1,130)

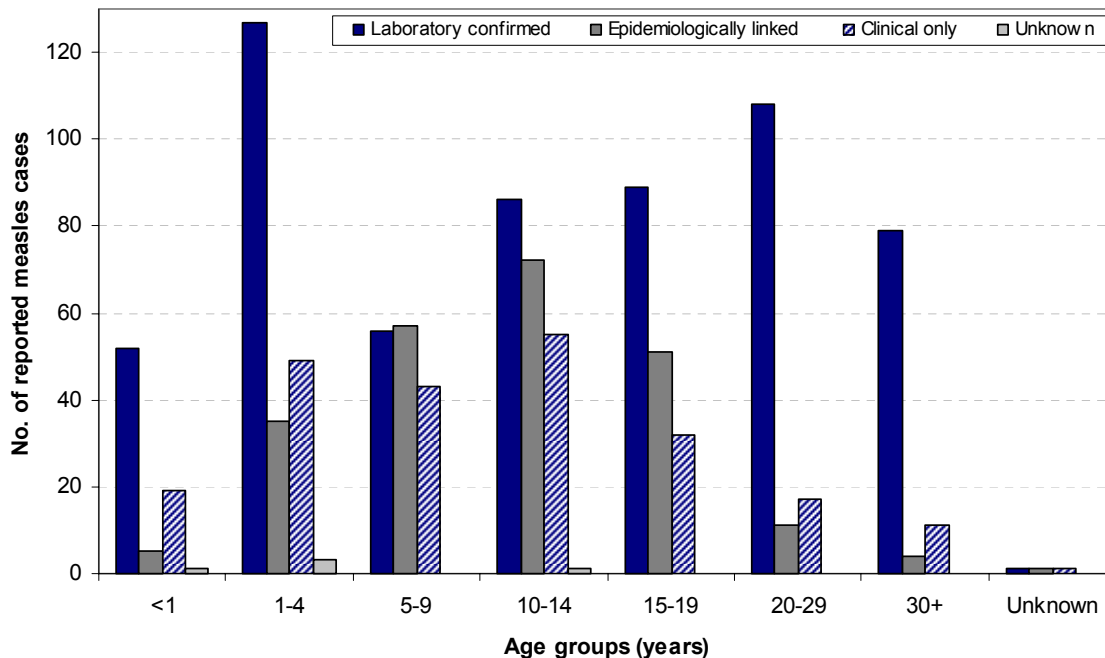


Table 2. Vaccination status of reported measles cases by country, 1<sup>st</sup> quarter 2006 (n=1,130)

Country	No. unvaccinated	Percentage unvaccinated of known vaccination status	No. vaccinated	Percentage vaccinated of known vaccination status	No. unknown vaccination / no data	Percentage unknown status / no data of total
Austria	11	92%	1	8%	0	0%
Belgium	1	100%	0	0%	1	50%
Croatia	0	-	0	-	0	-
Denmark	11	100%	0	0%	0	0%
Finland	0	-	0	-	0	-
France	8	50%	8	50%	2	11%
Germany	625	92%	53	8%	67	9%
Greece <sup>1</sup>	nr	-	nr	-	nr	-
Iceland	0	-	0	-	0	-
Ireland	8	67%	4	33%	13	52%
Italy <sup>1</sup>	nr	-	nr	-	nr	-
Luxembourg <sup>1</sup>	nr	-	nr	-	nr	-
Malta	0	-	0	-	0	-
The Netherlands	0	-	0	-	0	-
Norway	0	-	0	-	0	-
Portugal	1	100%	0	0%	0	0%
Spain	52	60%	34	40%	29	25%
Sweden	13	100%	0	0%	0	0%
Switzerland	3	100%	0	0%	6	67%
United Kingdom	154	93%	11	7%	14	8%
<b>Total</b>	<b>887</b>	<b>89%</b>	<b>111</b>	<b>11%</b>	<b>132</b>	<b>12%</b>

nr= no reports , <sup>1</sup> No data received till date of issue of this report

### Outbreaks and imported cases

The status relating to outbreaks was known in 80% of case based data in the first quarter 2006. A known importation status was reported in 69% of cases in the same period. Of these, there were 33 imported cases amounting to 4% of all cases with known importation status. The rest were cases believed to have been infected within their own country. During this period, 15 cases were imported from another country in Europe namely from Romania (4), Ukraine (3), UK (2), Germany (1), Greece (1), Albania (1), Italy (1), Denmark (1) and Luxembourg (1). Nine cases were reported as imported from Asia, five from the Middle East and six from Africa. Eight imported cases were associated with outbreaks in the reporting countries: Austria (1), Germany (1), Spain (4) and Sweden (2). No outbreaks were known to be associated with 12 imported cases while no data on association with outbreaks was available on 15 imported cases. The data available does not allow further analysis on the size of outbreaks associated with imported cases.

Table 3. Reported measles cases (case based data): hospitalised, outbreak related and imported, by country, 1<sup>st</sup> quarter 2006

Country	Hospitalised cases (n=210)			Outbreak related cases (n=469)			Imported cases (n=35)		
	No. reported (%) hospitalised of known hospitalisation status	Unknown / no data		No. reported (%) outbreak cases of known outbreak status	Unknown / no data		No. reported (%) imported of known importation status	Unknown / no data	
<b>Austria</b>	11 (92)	0		10 (83)	0		2 (67)		9
<b>Belgium</b>	0 -	1		0 -	1		0 -		1
<b>Croatia</b>	0 -	0		0 -	0		0 -		0
<b>Denmark</b>	7 (64)	0		8 (100)	3		1 (9)		0
<b>Finland</b>	0 -	0		0 -	0		0 -		0
<b>France</b>	5 (29)	1		0 -	3		3 (19)		2
<b>Germany</b>	120 (16)	4		341 (50)	0		6 (1)		7
<b>Greece<sup>1</sup></b>	nr -	-		nr -	-		nr -		-
<b>Iceland</b>	0 -	-		- -	0		- -		-
<b>Ireland</b>	2 (22)	16		0 -	18		0 -		21
<b>Italy<sup>1</sup></b>	nr -	-		nr -	-		nr -		-
<b>Luxembourg<sup>1</sup></b>	nr -	-		nr -	-		nr -		-
<b>Malta</b>	0 -	-		0 -	0		- -		0
<b>The Netherlands</b>	0 -	-		0 -	0		- -		0
<b>Norway</b>	0 -	-		0 -	0		- -		0
<b>Portugal</b>	0 -	0		0 -	0		- -		0
<b>Spain</b>	42 (38)	4		97 (87)	4		8 (100)		107
<b>Sweden</b>	0 -	13		8 (100)	5		7 (100)		6
<b>Switzerland</b>	1 (33)	6		5 (83)	3		0 -		3
<b>United Kingdom</b>	22 (32)	110		0 -	179		8 (100)		171
<b>Total</b>	<b>210 (23)</b>	<b>155</b>		<b>469 (55)</b>	<b>213</b>		<b>35 (5)</b>		<b>327</b>

nr= no reports , <sup>1</sup> No data received till date of issue of this report

Several reports of large outbreaks were submitted either directly to EUVAC.NET or at the annual EUVAC.NET meeting held in Malta on 7-8 April 2006. Below are summaries of these outbreaks. Reference is being made to on-line reports of these outbreaks in surveillance publications.

**Greece:**<sup>1,2</sup> Outbreak started towards the end of 2005 continued in 2006 with 106 cases reported in the first quarter of 2006. Sporadic cases began to appear in September 2005 and the number of cases reached peaked at week 51. By week 13 of 2006, 271 cases were reported with most cases (82%) reported from Northern Greece. Of all reported cases 39% were laboratory confirmed using IgM serology tests. 59% were clinical cases without laboratory confirmation and the rest were not yet established. 36% of the patients are aged 0-4 years, 17% are aged 5-9 years, 14% are aged 10-19; and 31% are aged 20 or older, most of these being young adults. 116 patients (43%) belong to Roma (gypsies) families and 50 (19%) to immigrant families; 102 cases (38%) belong to the non-minority general population. Of 191 patients with known vaccination status, 163 (85%) were unvaccinated for measles and 19 (10%) had had one dose of measles-containing vaccine.

**Spain:**<sup>3,4</sup> Two major measles outbreaks occurred in Spain. The larger one occurred in the Autonomous Region of Madrid where 65 cases of measles were notified, 50 of which have been laboratory confirmed. Young adults aged between 25-29 years were mainly affected. However, the age range of affected cases was between 12 months and 37 years. 36% of cases belonged to the age group that should have been vaccinated, which is people older than 15 months (first vaccine dose) and younger than 21 years (born after 1985 when the vaccine coverage was already high in the Region of Madrid). Measles virus genotype B3 has been confirmed in samples from 13 patients suggesting a common origin of the outbreak. It was not possible to get samples for virus isolation from the first patient, coming from Doncaster (UK); however isolates from the second case, linked to the first patient, showed the same genomic sequence as the rest of the cases in the outbreak. Outbreaks of measles have been reported in the UK among the traveller population with low vaccine coverage. Some cases of measles virus genotype B3 have recently been identified in Doncaster. In another measles outbreak at La Rioja involved four adults and 17 children between the ages of 3 months and 3 years. 72 % of the children were below the recommend age for the first dose of MMR vaccination. No cases were hospitalised and no deaths were reported. The measles strain in this outbreak belonged to genotype D6.

**Denmark and Sweden:**<sup>5,6</sup> Since late January, 18 laboratory-confirmed cases of measles have been reported in the Scandinavian region of Øresund; nine in Denmark and nine in Sweden. All nine Danish cases were in unvaccinated patients and were confirmed serologically. Furthermore, the measles virus was detected by polymerase chain reaction (PCR) in seven of the patients and has been identified as genotype B3. The genotype identified in Denmark differs from the genotype B3 that has recently been identified in the outbreak cases in southern Germany. Laboratory investigations have identified the genotype of one case in Sweden as B3 with a sequencing pattern identical to the Danish ones.

**Germany:**<sup>7,8</sup> Two large outbreaks have been identified, one in the southern state of Baden-Württemberg involving 66 cases and a more recent one in the western state of Nordrhein-Westfalen involving 560 cases. The outbreak in Baden-Württemberg was mainly concentrated in the greater Stuttgart area. Most of the cases occurred in unvaccinated children aged 1 to 4 years (n=22) and 5-9 years (n=22) respectively. Five children were younger than 1 year. Measles genotype B3 was identified in this outbreak.

In Nordrhein-Westfalen, 563 cases have been notified since the beginning of the year particularly in cities of the Ruhr region and in the Lower Rhine region bordering the Netherlands. Older children and adolescents were predominantly affected with 53% of cases in the 10-19 year old age group followed by 24% in the 1-9 year old age group. 18% of cases were 20 years and older. The most affected areas are the city of Duisburg. Initial laboratory results have shown that measles virus type D6 is the main cause of this outbreak in Nordrhein-Westfalen; the same genotype that has recently caused a large outbreak in the Ukraine.

**UK:**<sup>9</sup> In an outbreak of measles in Doncaster 37 cases were laboratory confirmed. The first confirmed cases, in week beginning 13 February, were from outbreaks in the local traveller community, and a playgroup, and an isolated sporadic case. There were no direct links between these three separate incidents, each occurring in geographically distinct areas of Doncaster. A further four cases in travellers were identified retrospectively, linked to the index case. Two of these retrospective cases were resident in Spain but had acquired the illness from contacts in Doncaster. Molecular typing results from six of the early cases from two of the clusters are all the B3 genotype. Over the following weeks, isolated cases and small family clusters were reported, most of which were unrelated to the playgroup and traveller outbreaks.

## **Morbidity and mortality**

During this quarter, the total amount of reported cases that were hospitalised in connection with measles represented 22% of all cases with known hospitalisation status. Encephalitis as a complication of measles was reported in two cases; one case from France was a 29 year old woman, one case from the UK was a 27 year old man. Both cases had received only one dose of measles-containing vaccine. One death attributed to measles was reported from UK in a 13 year old unvaccinated.

## **References**

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