



### Introduction

The following varicella surveillance report covers the year 2010 and aims to provide an overview of surveillance systems and selected epidemiological characteristics of varicella at European level.

### Methods

We requested varicella data in aggregated format, consisting of the number of cases in specified age-groups. Standardized forms were used to collect information on vaccination status, laboratory confirmation, hospitalisation and complications. Data was collected retrospectively in 2011. The following report provides an overview for the countries with epidemiological data obtained through mandatory notifications systems covering total country populations. Cases meeting the requirements for national surveillance, including clinical, laboratory-confirmed, and epidemiologically linked cases, were analyzed. Country incidence were calculated using the population figures for 2010 from Eurostat.<sup>1</sup> Population estimates for Northern Ireland were derived from the Northern Ireland Statistics and Research Agency.<sup>2</sup>

### Surveillance systems

Eighteen EUVAC.NET-participating countries (UK represented by Northern Ireland) conducted surveillance for varicella based on a mandatory notification system covering the total country population.

In Germany, varicella is a notifiable disease in five of the 16 federal states. Austria, Belgium, England and Wales, France, Ireland, Portugal and the Netherlands conduct sentinel surveillance systems for varicella. In Denmark, Iceland, Luxemburg, Sweden, Switzerland and Turkey varicella is not a mandatory notifiable disease.<sup>3</sup> Turkey reported 76,375 cases from voluntary reporting, however, as varicella is not notifiable and the data does not originate from a comprehensive surveillance system, it was not included in the analysis.

Norway has a laboratory based system where only laboratory confirmed cases of encephalitis are reported.

In 2010 varicella ceased to be notifiable in Scotland.<sup>4</sup> The only Scottish data available at present represents one laboratory and since they would be

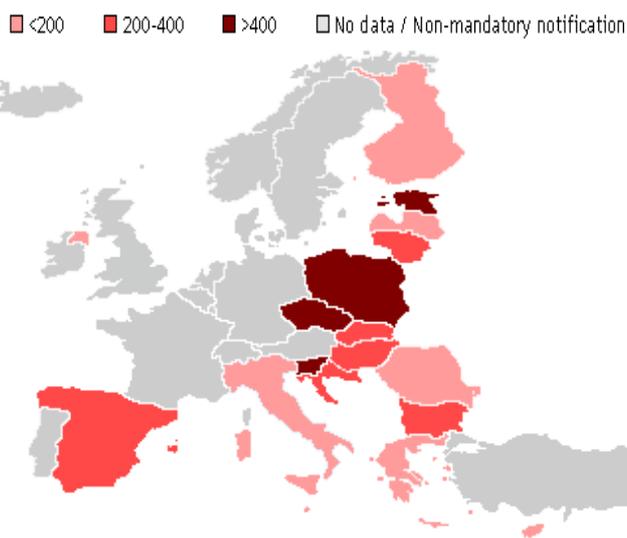
highly unrepresentative of Scotland they were not reported.

### Results

#### Incidence

In 2010 a total of 592,681 varicella cases was reported from 18 countries that provided epidemiological data based on mandatory notification systems covering the total country population (table 1). The incidence category of reported varicella cases per 100,000 inhabitants is shown in figure 1. The highest incidences were reported from Poland, Czech Republic, Estonia and Slovenia with 481, 459, 458 and 444 cases per 100,000 inhabitants, respectively. The countries which contributed the most in terms of cases were Poland (n= 183,446), Spain (n=157,222) and Czech Republic (n= 48,270), contributing respectively to the 31%, 27% and 8% of all cases reported in 2010.

Figure 1. Incidence category of reported varicella cases per 100,000 inhabitants. 2010



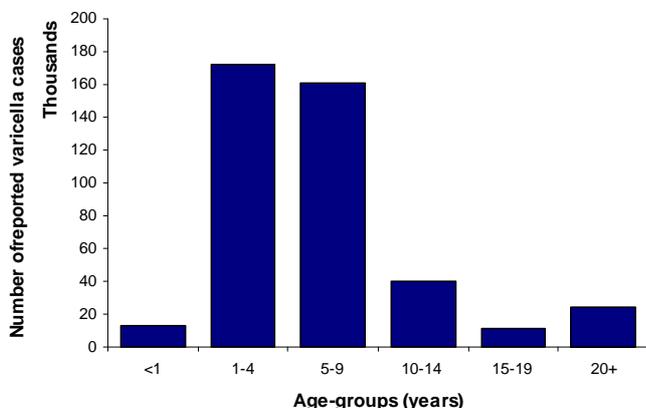
#### Age distribution

Fifteen countries (Bulgaria, Croatia, Cyprus, Czech Republic, Estonia, Greece, Finland, Hungary, Italy, Latvia, Malta, Poland, Romania, Slovakia, Slovenia) reported cases by age-group. These reported 422,310 varicella cases (72% of the total). Of these cases, age was known for 421,875 cases (99.9% of the total).

The cases were distributed between age-groups with 13,036 (3%) aged <1 year, 172,162 (41%)

aged 1-4 years, 160,850 (38%) aged 5-9 years, 40,332 (10%) aged 10-14 years, 11,544 (3%) aged 15-19 years and 23,951 (6%) older than 20 years.

Figure 3. Number of varicella cases by age-group, (n=852,021), for the 15 countries reporting on age, 2010



### Vaccination status

Eight countries reported on vaccination status (Cyprus, Estonia, Greece, Hungary, Italy, Latvia, Slovakia, Slovenia), for a total of 116,346 cases with a known vaccination status (98% of the cases reported by these countries, n=118,148)

Of the total cases with a known vaccination status, 115,716 (99.5%) were unvaccinated and 630 (0.5%) had received at least one dose.

### Hospitalisations

Data on hospitalisation status was provided by 10 countries (Bulgaria, Cyprus, Czech Republic, Estonia, Greece, Hungary, Italy, Latvia, Slovakia and Slovenia), table 2.

There were 1,647 reported hospitalised cases in connection with varicella. Most were aged 1-4 years (31%, n=504), followed by those aged 5-9 years (16%, n=279) and those aged more than 20 years (15%, n=242). For 313 cases the age was unknown (19%).

The highest hospitalisation rates were seen among the <1 year of age (6%, 160/2709 cases reported by the 10 countries), and among those 15-19 years of age (4%, 65/1743) and those older than 20 years of age (7%, 242/3325).

### Complications

Information on the number of cases with complications related to varicella was provided from five

countries (Estonia, Greece, Hungary, Slovakia and Slovenia) where a total of 153 cases with complications were reported.

Most cases with complications were aged 5-9 years (26%, n=39), followed by those aged below one year (7%, n=11), by those aged 10-14 years (6%, n=9), and those aged and over 30 years (6%, n=10).

The highest complication rates were seen among those of 15-19 years of age (4%, 6/170) and infants with <1 year of age (2%, 11/464 cases reported by the five countries).

### Comments

The number of cases of varicella in EUVAC.NET participating countries remains high and comparable to that of the previous years.<sup>5</sup> The number of countries reporting to EUVAC.NET has decreased as compared to the previous report as Scotland discontinued surveillance of varicella and Norway did not report surveillance data.

Two countries (Latvia and Hungary) reported on vaccination status for the first time. Nevertheless information available at European level regarding varicella remains scarce, with most countries reporting on age (15/18) but only 10/18 providing information on hospitalisation status and even less (5/18) on complications.

As in previous years, the highest number of cases was seen in unvaccinated children below the age of ten. However when looking at the impact of disease, our findings showed that the highest rates of hospitalisations or complications were in the very young (less than one year of age) and in the oldest (more than 15 years of age).

At the time this report is being issued the EU case definition of varicella has not been approved and therefore the data presented must be interpreted with caution. All countries – except Finland and Greece – reported mostly clinical cases. However clinical definitions of varicella differ among European countries.<sup>3</sup>

Description of varicella outbreaks have been reported in the literature recently.<sup>6-9</sup> These reports has shown a limited effect on one dose vaccination

strategy and have supported the use of a second dose, which is recommended now by most countries which have introduced varicella vaccination in the childhood programme.<sup>10-12</sup>

EUVAC.NET has been collaborating with ECDC on a project modelling the impact of varicella vaccination in Europe. Part of the project has already produced a study which showed that first dose coverage should be 90% and second dose should be 70% to have a substantial reduction in the incidence of varicella.<sup>13</sup> The study also showed that the effect of a combined strategy (zoster and varicella vaccine) is currently limited because much of the increase of varicella occurs in adults which are not eligible for zoster vaccination. Part of the EUVAC.NET data is planned to be used for cost-effectiveness analysis. Once again this is an example that collaboration among European countries and European networks can provide benefits to inform vaccination policies.

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Table 1. Number, incidence per 100,000 inhabitants, and proportion of laboratory-confirmed varicella cases, 2010

	Number of cases (incidence per 100,000)				Laboratory confirmed cases (%)	
	2009		2010		2010	
Bulgaria	29,117	383	19,724	261	0	0%
Croatia	17,563	396	16,027	362	n/a	-
Cyprus	159	20	75	9	n/a	-
Czech	47,192	451	48,270	459	n/a	-
Estonia	8,556	638	6,146	459	n/a	-
Finland*	360	6.8	358	7	358	100%
Greece**	7	0.1	5	0	3	43%
Hungary	40,460	403	39,602	396	1	0%
Italy	56,502	94	39,649	66	n/a	-
Latvia	5,019	222	3,697	164	9	0.2%
Lithuania	12,698	379	11,042	332	n/a	-
Malta	183	44	92	22	n/a	-
Norway***	31	0.6	n.r.	-	n.r.	-
Poland	140,115	367	183,446	481	n/a	-
Romania	44,693	208	36,245	169	n/a	-
Slovakia	17,735	328	19,887	367	48	0%
Slovenia	13,060	643	9,087	444	43	1%
Spain	141,399	309	157,222	342	n/a	-
UK (Northern Ireland)	2,649	149	2,107	117	n/a	-
(Scotland)	16,569	321	n.app.	-	n.app.	-
<b>Total</b>	<b>594,067</b>		<b>592,681</b>		<b>462</b>	<b>0.5%<sup>†</sup></b>

n/a not available

n.r. not reported

n. app not applicable

\*\*Finland has a laboratory based surveillance systems which does not separate clinical disease and therefore includes both varicella and herpes zoster

\*Greece: the national mandatory surveillance system includes only varicella cases with complications.

\*\*\*Norway: only laboratory cases of varicella encephalitis were reported in 2009.

<sup>†</sup>Denominator is the number of cases reported by countries (n=7) which report information on laboratory confirmation (n=92,360)

Table 2. Number and percentage of hospitalised cases and cases with varicella-related complications, for countries reporting on these variables, 2010

	Hospitalised		Complications	
	Number	%	Number	rate per 1000
<b>Bulgaria</b>	311	1%	-	-
<b>Cyprus</b>	0	0%	-	-
<b>Czech Republic</b>	329	0.7%	-	-
<b>Estonia</b>	6	0.1%	44	1%
<b>Greece*</b>	5	71%	5	71%
<b>Hungary</b>	377	0.9%	59	0.1%
<b>Italy</b>	273	0.5%	-	-
<b>Latvia</b>	151	3%	-	-
<b>Slovakia</b>	126	0.7%	15	0.1%
<b>Slovenia</b>	69	0.5%	30	0.2%

\*Greece: the national mandatory surveillance system includes only varicella cases with complications

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