Introduction

The following varicella surveillance report covers the years 2008-2009 and aims to provide an overview of surveillance systems and selected epidemiological characteristics of varicella at European level.

Methods

We requested varicella aggregated data, 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 2010. 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 2008 and 2009 from Eurostat.[1] Population estimates for Northern Ireland and Scotland were derived from the Northern Ireland Statistics and Research Agency[2] and the General Register Office for Scotland.[3]

Surveillance systems

Nineteen EUVAC.NET-participating countries (UK represented by Northern Ireland and Scotland) conducted surveillance for varicella based on a mandatory notification system covering the total country population.[4]

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.

Results

Incidence

For 2008 and 2009, a total of 569,527 and 594,067 varicella cases, respectively, was reported from 19 countries that provided epidemiological data based on mandatory notification systems covering the total country population (tables 1 and 2). The incidence category of reported varicella cases per 100,000 inhabitants is shown in figure 1 for 2008 and in figure 2 for 2009.

In 2008, the highest incidences were reported from Estonia, Slovenia and Lithuania, with 558, 528 and 427 cases per 100,000 inhabitants, respectively. Most cases (59%; n= 333,985) were reported from Poland (n=129,662), Spain (n=125,706) and Italy (n=78,617), contributing to 23%, 22% and 14%, respectively, of all cases reported in 2008.

In 2009, the highest incidences were reported from Slovenia, Estonia and Czech Republic, with 643, 638 and 415 cases per 100,000 inhabitants, respectively. Also in 2009 most cases (57%, n=338,016) were reported from Spain (n=141,399), Poland (n=140,115), and Italy (n=56,502), contributing to 24%, 23% and 10% respectively of all cases reported in 2009.

Figure 1. Incidence category of reported varicella cases per 100,000 inhabitants, 2008

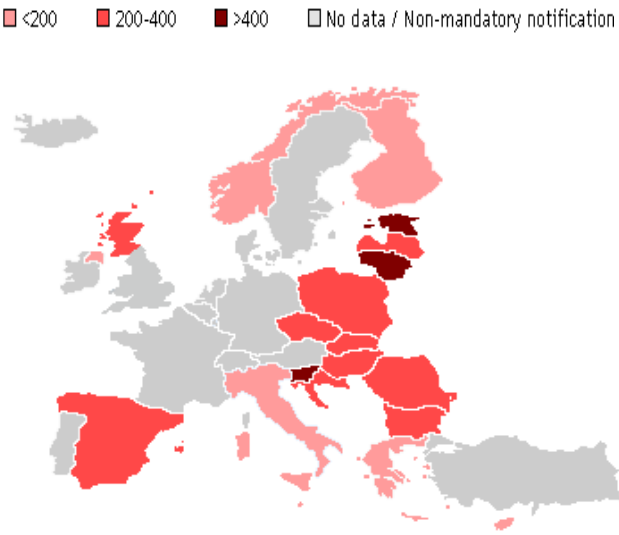
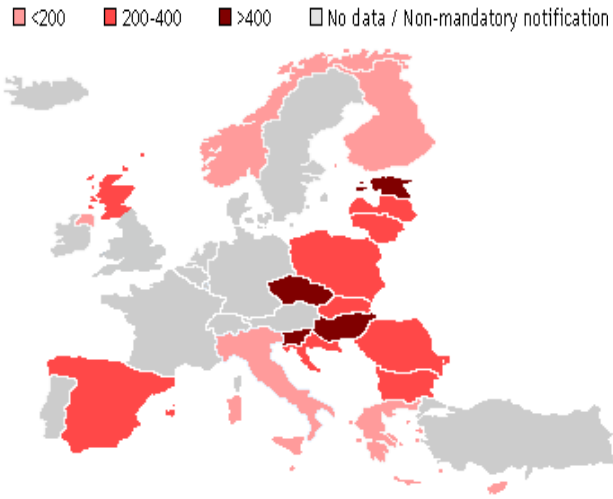


Figure 2. Incidence category of reported varicella cases per 100,000 inhabitants, 2009

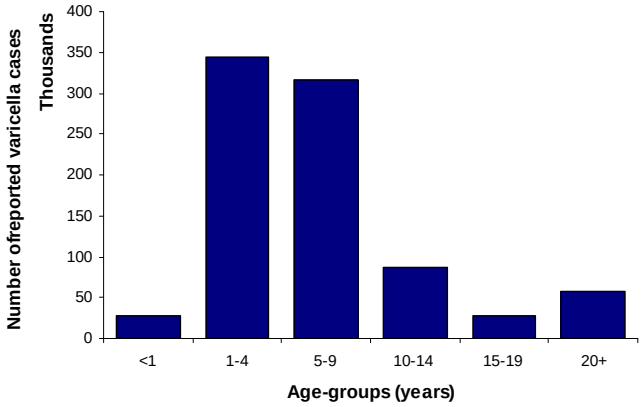


Age distribution

For both 2008 and 2009, 15 countries (Bulgaria, Croatia, Cyprus, Czech Republic, Estonia, Greece, Hungary, Italy, Latvia, Malta, Poland, Romania, Slovak Republic, Slovenia, Scotland) reported cases by age-group. These reported 420,973 varicella cases in 2008 and 431,048 in 2009, amounting to 73% and 74% respectively of the total cases reported.

The age distribution was similar in the two years. These cases were distributed between age-groups with 28,232 (3%) aged <1 year, 344,249 (40%) aged 1-4 years, 316,486 (37%) aged 5-9 years, 87,673 (10%) aged 10-14 years, 28,276 (3%) aged 15-19 years and 57,592 (7%) older than 20 years.

Figure 3. Number of varicella cases by age-group, (n=852,021), for the 15 countries reporting on age, 2008-2009



Vaccination status

Six countries reported cases by a known vaccination status (Cyprus, Greece, Italy, Latvia, Slovakia, Slovenia), for a total of 98,859 cases in 2008 (17% of the cases reported in 2008) and 83,353 in 2009 (14% of the cases reported in 2009). Among these countries the proportion of unvaccinated cases was high in both years.

In 2008, of the total cases with a known vaccination status, 98,394 (99%) were unvaccinated and 465 (0.5%) had received at least one dose.

In 2009, of the cases with a known vaccination status, 82,641 (99%) were unvaccinated and 712 (0.9%) had received at least one dose.

Hospitalisations

Data on hospitalisation status was provided from nine countries (Bulgaria, Cyprus, Greece, Hungary, Italy, Latvia, Norway, Slovakia and Slovenia), table 3 and table 4.

In 2008, there were 1,938 reported hospitalised varicella cases in connection with varicella. Most were aged 1-4 years (32%, n=627), followed by those aged 5-9 years (18%, n=348) and those aged more than 20 years (20%, n=403). For 264 cases the age was unknown (12%).

In 2009, a total of 1,861 hospitalised varicella cases were reported, with a distribution similar to the previous year as regard to age-group. Most were aged 1-4 years (29%, n=543), followed by those aged 5-9 years (15%, n=280) and those above the age of 20 (18%, n=340). For 384 cases the age was unknown (21%).

Complications

Information on the number of cases with complications related to varicella was provided from five countries (Greece, Hungary, Norway, Slovakia and Slovenia) where a total of 90 cases with complications were reported in 2008 and 75 in 2009. The age distribution was similar in the two years.

In 2008, most cases with complications were aged 1-4 years (44%, n=40), followed by those aged 5-9 years (24%, n=22,), and those aged and over 30 years (11%, n=10) and below one year (10%, n=9).

In 2009 most cases with complications were aged 1-4 years (34%, n=26), followed by those aged 5-9 years (29%, n=22,), and those aged and over 30 years (15%, n=11) and below one year (12%, n=9).

Comments

The number of cases of varicella in EUVAC.NET participating countries remains high and comparable to that of the previous years.[5] The number of countries reporting varicella surveillance data to EUVAC.NET has increased and in 2008-09 Norway and Northern Ireland included for the first time our assessment.

We observed a high degree of variation in the epidemiological picture among reporting countries. Comparisons between countries have to be made with caution because of different reporting procedures. Two countries (Finland and Norway) reported only laboratory-confirmed cases, and even had differing case definitions.[2] In Greece, the system collected data only on varicella cases with complications. EUVAC.NET has proposed a case definition and case classification to ECDC to endorse at EU level for surveillance purposes.

Our assessment was limited to the countries performing surveillance on the total population. It is therefore clear that our assessment represents only the situation in some countries. We did not include data obtained from sentinel systems as

these cannot be compared with data obtained mandatory notification systems. Moreover, a number of countries do not perform surveillance of varicella.

The majority of varicella cases was below the age of 10 years and was unvaccinated. Such picture is compatible with the varicella vaccination having been in the childhood vaccination schedule only in few European countries.[2]

The completeness of data available at European level needs to be further improved. Even if currently only aggregated datasets have been used for reporting; only few countries are able to report on all variables. Almost all countries were able to report cases by age-groups, however not all were able to stratify cases above the age of twenty years. Few countries were able to report on vaccination status and even fewer on hospitalisations and complications.

References

1 Eurostat. Statistical Office of the European Communities. http://epp.eurostat.ec.europa.eu (accessed May 14, 2009).

2 .EUVAC.NET Surveillance of Varicella and Herpes Zoster in Europe, 2010. Available online at http://www.euvac.net/graphics/euvac/pdf/varicella_zoster_surveillance.pdf

3 Northern Ireland Statistics and Research Agency http://www.nisra.gov.uk/

4 General Register Office for Scotland. http://www.gro-scotland.gov.uk/

5 EUVAC.NET Varicella Surveillance report 2000-2007. Available at http://www.euvac.net/graphics/euvac/pdf/varicella_report_2007.pdf

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Table 1. Number, incidence per 100,000 inhabitants, and proportion of laboratory-confirmed varicella cases, 2008

	Number of cases	Incidence	Laboratory confirmed cases (%)	
Bulgaria	22,693	297	8	0%
Croatia	17,607	397	-	-
Cyprus	153	19	-	-
Czech Repubic	38,965	375	-	-
Estonia	7,479	558	-	-
Finland*	322	6	322	100%
Greece**	17	0.2	3	18%
Hungary	36,412	363	0	0%
Italy	78,617	132	-	-
Latvia	6,955	306	0	0%
Lithuania	14,385	427	-	-
Malta	311	76	-	-
Norway***	23	0.5	23	100%
Poland	129,662	340	-	-
Romania	49,809	231	-	-
Slovakia	15,592	289	18	0%
Slovenia	10,697	528	49	0%
Spain	125,706	278	-	-
UK (Northern Ireland)	1,941	109	-	-
(Scotland)	12,181	236	-	-
Total	**569,527**		**423**	**0.5%**[†]

**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 are reported.

[†]Denominator is the number of cases reported by countries (n=8) which report information on laboratory confirmation (n=92,711)

Table 2. Number, incidence per 100,000 inhabitants, and proportion of laboratory-confirmed varicella cases, 2009

	Number of cases	Incidence	Laboratory confirmed cases (%)	
Bulgaria	29117	383	8	0%
Croatia	17563	396	-	-
Cyprus	159	20	-	-
Czech	47192	451	-	-
Estonia	8556	638	-	-
Finland*	360	6.8	360	100%
Greece**	7	0.1	2	29%
Hungary	40460	403	3	0%
Italy	56502	94	-	-
Latvia	5019	222	5	0%
Lithuania	12698	379	-	-
Malta	183	44.2	-	-
Norway***	31	0.6	31	100%
Poland	140115	367	-	-
Romania	44693	208	-	-
Slovakia	17735	328	30	0%
Slovenia	13060	643	87	1%
Spain	141399	309	-	-
UK (Northern Ireland)	2649	149	-	-
(Scotland)	16569	321	-	-
Total	**594,067**		**526**	**0.5%**[†]

**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 are reported

[†]Denominator is the number of cases reported by countries (n=8) which report information on laboratory confirmation (n=105,789)

Table 3. Number and percentage of hospitalised cases and cases with varicella-related complications, for countries reporting on these variables, 2008

	Hospitalised		Complications	
	Number	%	Number	rate per 1000
Bulgaria	220	1%	-	-
Cyprus	1	0.7%	-	-
Greece*	17	100%	17	100%
Hungary	342	0.9%	51	-
Italy	820	1%	-	-
Latvia	275	4%	-	-
Norway**	23	100%	1	4.3%
Slovakia	157	1%	21	0.1%
Slovenia	83	0.8%	0	0%

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

**Norway: only laboratory cases of varicella encephalitis are reported

Table 4. Number and percentage of hospitalised cases and cases with varicella-related complications, for countries reporting on these variables, 2009

	Hospitalised		Complications	
	Number	%	Number	rate per 1000
Bulgaria	366	1%	-	-
Cyprus	3	2%	-	-
Greece*	7	100%	7	100%
Hungary	364	0.9%	49	-
Italy	672	1%	-	-
Latvia	187	4%	-	-
Norway**	30	97%	1	4.3%
Slovakia	112	0.6%	18	0.1%
Slovenia	120	0.9%	0	0%

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

**Norway: only laboratory cases of varicella encephalitis are reported

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