Introduction

The following measles surveillance report covers the year 2004 and aims to describe basic epidemiological features of measles in EUVAC.NET participating countries. All incidence rates are based on reported measles cases and are per 10^5 inhabitants per year.

Methods

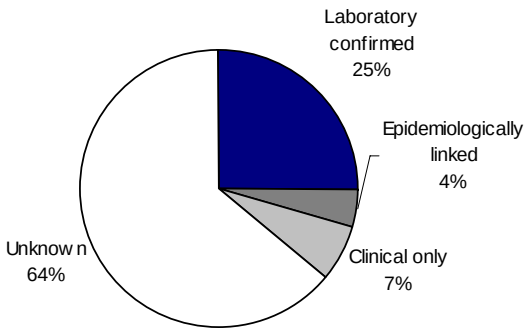
For 2004, 17 (89%) out of the 19 EUVAC.NET participating countries provided case-based data. With the exception of Belgium the data were obtained through national mandatory notification systems. In the remaining two countries, Austria reported aggregated data with number of cases by month and France provided sentinel surveillance data. In addition to case-based data collected through national mandatory notification systems, Switzerland and Italy also provided sentinel surveillance data.

Data analyses were based on cases with disease onset in 2004. In 60 case-based reports (4%) the disease onset dates were not available. However, these cases were also included in the analyses on the basis of their date of notification or date of collection of laboratory sample being in 2004. In some countries minor discrepancies with nationally reported data may arise if these include cases notified in 2004 but with disease onset in 2003. Incidence rates were based on population statistics for 2004 obtained from the Population Information page on the WHO website for the Computerized Information System for Infectious Diseases (CISID), http://data.euro.who.int/cisid/ . Variables that had no data in the case-based reports were converted to an unknown status.

Incidence – notifications and laboratory data

EUVAC.NET gatekeepers reported a total of 1,492 measles cases giving a crude incidence of 0.45 per 100,000 inhabitants. Data on 1,476 (99%) of these were case-based and classified as seen in Figure 1. Data on the rest of the cases (16) were aggregated data from Austria.

Figure 1. *Reported measles cases by classification (n=1,476)*



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The distribution of notified measles cases varied considerably among the participating countries (Table 1). The highest incidence of measles notifications was reported from Ireland with a crude incidence of 8.23 per 100,000. However, only 13% of these reported cases were laboratory-confirmed or epidemiologically linked cases.

Table 1. *Reported measles cases and laboratory confirmed cases by country, 2004 (n=1,492)*

	No. of reported cases	*Crude incidence per 100,000 inhabitants*	*Confirmed cases* as a % of no. reported*	*Laboratory confirmed as a % of total confirmed cases*
Austria [1]	16	0.20	n.r.	n.r.
Belgium	61	0.59	67%	46%
Denmark	0	0	-	-
Finland	0	0	-	-
France [2]	-	-	-	-
Germany	122	0.15	59%	86%
Greece	1	0.01	0%	-
Iceland	0	0	-	-
Ireland	325	8.23	13%	95%
Italy	676	1.18	0%	-
Luxembourg	0	0	-	-
Malta	6	1.51	17%	100%
The Netherlands	5	0.03	100%	60%
Norway	7	0.15	100%	100%
Portugal	1	0.01	0%	-
Spain	26	0.07	96%	88%
Sweden	5	0.06	80%	100%
Switzerland	39	0.54	87%	50%
United Kingdom	202	0.34	100%	98%
Total	***1,492***	***0.45***	***29%***	***86%***

[1] Aggregated data for month of onset only provided. [2] Only sentinel surveillance system operating * Confirmed cases include both laboratory-confirmed cases and epidemiologically-linked cases. n.r. = not reported

In table 2, countries have been grouped into low, moderate and high incidences based on notified indigenous (non-imported) measles cases. No indigenous cases were reported from Denmark, Finland, Iceland, Luxembourg and Norway.

Table 2. *Reported incidence of indigenous measles cases by country, 2004*

Low incidence (< 0.1)	Moderate incidence (0.1-1.0)	High incidence (>1.0)
Denmark (0)	Austria (0.20)*	Ireland (8.23)
Finland (0)	Belgium (0.57)	Italy (1.18)*
Greece (0.01)	Germany (0.13)	Malta (1.51)
Iceland (0)	Switzerland (0.50)	
Luxembourg (0)	UK (0.30)	
The Netherlands (0.02)		
Norway (0)		
Portugal (0.01)		
Spain (0.05)		
Sweden (0.03)		

* Based on crude incidence as no data on importation status was reported

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Outbreak-related and imported cases

Information on outbreak status was provided in 19% of all reported cases. Of these, there were 127 outbreak-related cases reported in 2004 (Table 3) making up to 45% of those with a known outbreak status and 9% of all reported cases. Most outbreak cases were reported from Belgium (24%), followed by Switzerland (22%) and Ireland (22%).

Importation status was reported in 17% of all reported cases (Table 3). Of these, there were 59 imported cases amounting to 24% of all cases with known importation status. Nineteen cases (32%) were imported from another European country. There were 40 imported cases (68%) from other continents including, 23 from Asia, 12 from the Middle East, two from Africa, two from North America and one from South America.

Table 3. *Reported measles cases: hospitalised, outbreak related and imported, by country, 2004 (n=1,492)*

	No. of reported cases	**Hospitalised cases**		**Outbreak-related cases**		**Imported cases**	
		No. (% of known hospitalisation status)	*% unknown /no data*	*No. (% of known outbreak status)*	*% unknown /no data*	*No. (% of known importation status)*	*% unknown /no data*
Austria [1]	16	n.r.	-	n.r.	-	n.r.	-
Belgium	61	4 (9)	25	30 (70)	30	2 (5)	28
Denmark	0	0	-	0	-	0	-
Finland	0	0	-	0	-	0	-
France [2]	-	-	-	-	-	-	-
Germany	122	21 (17)	0	21 (17)	0	14 (13)	8
Greece	1	1 (100)	0	0	0	0	0
Iceland	0	0	-	0	-	0	-
Ireland	325	10 (20)	85	28 (78)	89	0	96
Italy	676	47 (8)	11	0	100	0	100
Luxembourg	0	0	-	0	-	0	-
Malta	6	0	-	0	-	0	-
The Netherlands	5	0	-	4 (100)	20	2 (100)	60
Norway	7	6 (86)	0	5 (71)	0	7 (100)	0
Portugal	1	0	-	0	-	0	-
Spain	26	10 (38)	0	11 (42)	0	8 (100)	69
Sweden	5	0	0	0	-	2 (50)	20
Switzerland	39	3 (8)	8	28 (93)	23	3 (9)	15
United Kingdom	202	27 (33)	59	0	100	21 (100)	90
Total	***1,492***	***129 (13)***	***33%***	***127 (45)***	***81%***	***59 (24)***	***83%***

Figures in brackets represent percentage of number of cases with known status for each category.
[1] Only aggregated date reported. [2] Only sentinel surveillance systems operating. n.r. = not reported

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Age distribution and seasonality

Measles was reported in both children and adults with most cases in the 1-4 year age group (Figure 2). These accounted for 33% of all reported cases, followed by the 5-9 (21%) and 10-14 (15%) year age groups. Those over the age of 20 years had the highest proportion of laboratory confirmed cases (53%), followed by children less than 1 year of age (28%). Overall, most cases (72%) were reported to occur in the first half of the year (Figure 3).

Figure 2. *Notified measles cases by age group and confirmation status in 17 case-based reporting countries, 2004 (n=1,476)*

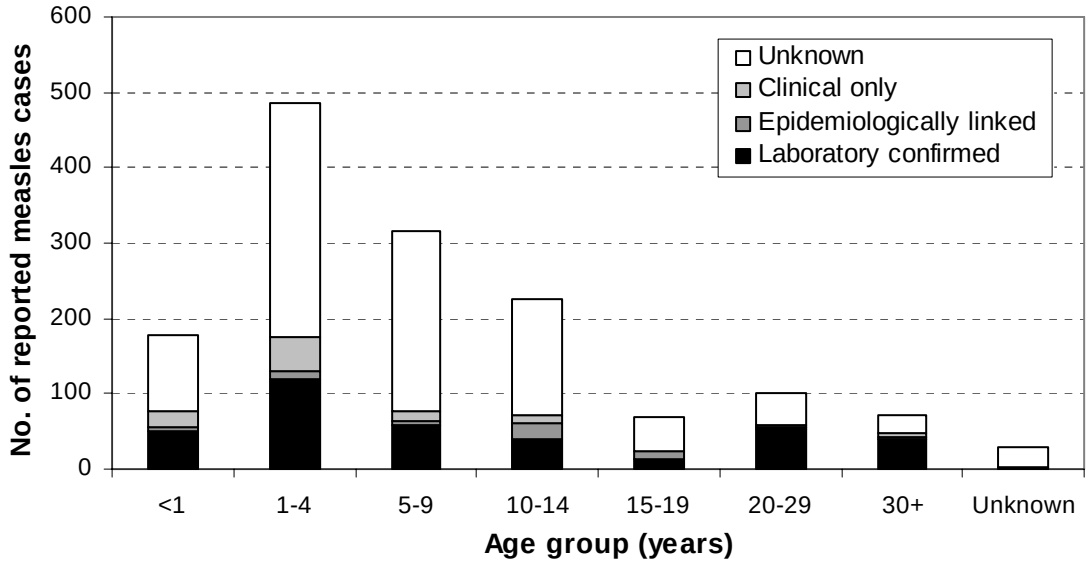
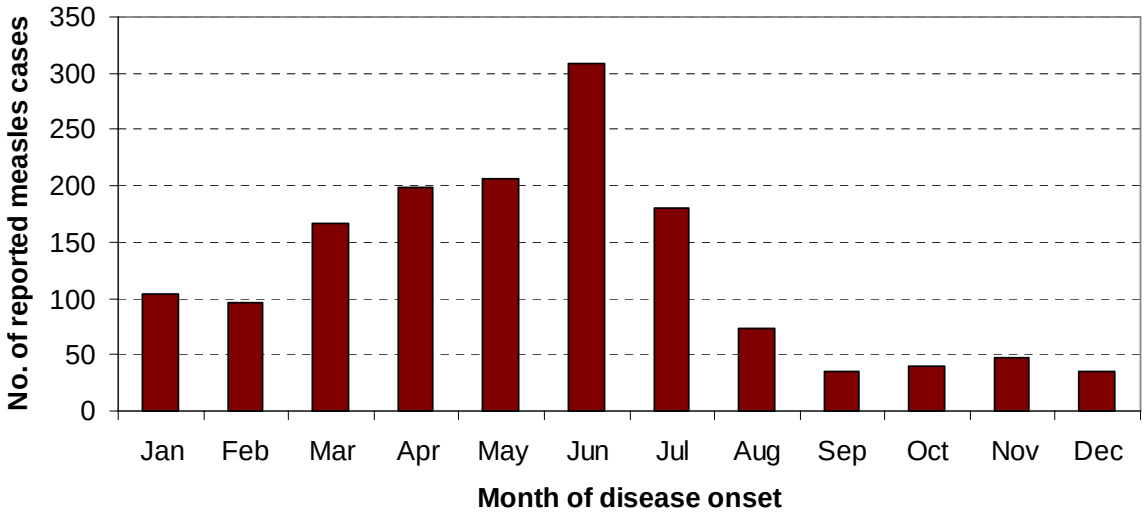


Figure 3. *Number of reported measles cases by month of disease onset in 18 reporting countries, 2004 (n=1,492)*



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Vaccination status

Information on vaccination status was provided in 76% of the total measles cases (Figure 4). Eighty-two percent of the reported measles cases with a known vaccination status occurred in unvaccinated children (Table 4).

Figure 4. *Vaccination status of reported measles cases (n=1,476)*

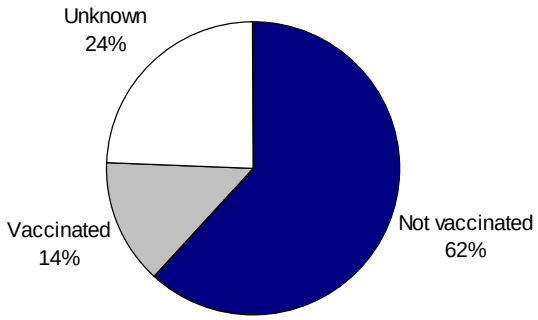

Table 4. *Vaccination status of reported measles cases by country, 2004 (n=1,476)*

	No. of unvaccinated cases (% of known vaccination status)	*No. of vaccinated cases (% of known vaccination status)*	*Percentage of cases with unknown vaccination status*
Austria [1]	n.r.	n.r.	n.r.
Belgium	32 (76)	10 (24)	31%
Denmark	0	0	-
Finland	0	0	-
France [2]	-	-	-
Germany	74 (67)	36 (33)	10%
Greece	0	0	100%
Iceland	0	0	-
Ireland	119 (79)	32 (21)	54%
Italy	473 (85)	83 (15)	18%
Luxembourg	0	0	-
Malta	1 (17)	5 (83)	0%
The Netherlands	5 (100)	0	0%
Norway	6 (100)	0	14%
Portugal	0	1 (100)	0%
Spain	18 (86)	3 (14)	19%
Sweden	5 (100)	0	0%
Switzerland	22 (79)	6 (21)	28%
United Kingdom	156 (85)	28 (15)	9%
Total	***911 (82)***	***204 (18)***	***24%***

Figures in brackets represent percentage of number of cases with known vaccination status for each category.
[1] Aggregated data for month of onset only provided. [2] Only sentinel surveillance system operating. n.r. = not reported

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Morbidity and mortality

Data on known hospitalisation status was available in 67% of cases. There were 129 reported hospitalised cases in connection with measles (Table 3) amounting to 13% of all cases with known hospitalisation status. Of these, 36% were reported from Italy followed by the UK (21%). Encephalitis was reported in two cases giving an incidence of 136 per 100,000 measles cases. One case was reported from Belgium in a 23 year old female. This resulted in the only reported death attributed to measles corresponding to an incidence of 7 per 100,000 measles cases. The other case of encephalitis was reported in a 3 year old male in Switzerland. Both cases were unvaccinated against measles.

Data from Sentinel Surveillance Systems

In France the sentinel surveillance system is the only system in place for reporting measles cases. In 2004 it involved 260 general practitioners who reported eight cases giving an extrapolated 4448 cases nationwide and an incidence of 7 per 100,000 inhabitants.

Besides case-based reporting Switzerland also provided sentinel surveillance data. The Swiss sentinel system involved the participation of about 3% of all primary care physicians who reported six cases giving an extrapolated 150 cases and a crude incidence rate of 2 per 100,000 inhabitants.

In Italy a paediatric sentinel surveillance system for childhood vaccine-preventable diseases (SPES)[1] involved 419 paediatricians caring for 3.2% of the paediatric population up to 14 years of age. The Italian paediatric sentinel surveillance system reported 159 cases giving a crude incidence rate of 61 per 100,000 children aged up to 14 years. The incidence of 136 per 100,000 children in the southern Italian regions contrasts markedly with the incidence in the central and northern regions of the country with an incidence of 2 and 7 per 100,000 children.

Comments

Overall there has been an 89% drop in reported measles cases through national universal notification systems in EUVAC.NET participating countries in 2004 compared with 2003. This was mostly attributed to the decreased number of reported cases from Italy (94%) and Germany (84%) each respectively contributing to 84% and 5% of the drop in the total number of reported cases. Five countries namely Denmark, Finland, Iceland, Luxembourg and Norway have reported indigenous measles incidence rates of zero possibly indicating an elimination or near-elimination situation.

In 2004, the highest proportion of cases occurred in the 1-4 year age group followed by the 5-9 and 10-14 year age groups. This pattern is similar to that observed in 2001 before the epidemic years of 2002 and 2003 were the highest proportion of cases were reported in the 5-9 year age group.

Reporters

Mark Muscat and Henrik Bang

Acknowledgements

We would like to thank all EUVAC.NET gatekeepers and reporters who have contributed data to this surveillance network: Reinhild Strauss, Federal Ministry for Health and Women, Austria; Tinne Lernout, Scientific

[1] http://www.spes.iss.it/

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Institute of Public Health, Belgium; Irja Davidkin, National Public Health Institute, Finland; Isabelle Parent, Institut de la Veille Sanitaire, France; Anette Siedler, Robert Koch-Institut, Germany, Takis Panagiotopoulos and Ioanna Magaziotou, Hellenic Centre for Infectious Diseases Control, Greece, Gudrún Sigmundsdóttir, Directorate of Health, Iceland, Sarah Gee and Suzanne Cotter, National Disease Surveillance Centre, Ireland, Stefania Iannazzo, Ministry of Health, Italy, Marta Ciofi, Istituto Superiore di Sanità, Italy, Pierrette Huberty-Krau, Direction de la Santé, Luxembourg, Andrew Amato Gauci and Jackie Maistre Melillo, Health Division, Malta, Frithjofna Abbink and Hester de Melker, National Institute of Public Health and the Environment (RIVM), The Netherlands, Øistein Løvoll, National Institute of Public Health, Norway, Maria Da Graça Gregório de Freitas and Teresa Fernandes, National Institute of Health, Portugal, Mª Victoria Martínez de Aragón, Instituto de Salud Carlos III, Spain, Malin Arneborn, Swedish Institute for Infectious Disease Control, Sweden, Jean-Luc Richard, Swiss Federal Office of Public Health, Switzerland, Joanne White, Health Protection Agency, Communicable Disease Surveillance Centre, UK.

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