Introduction

The following measles surveillance report covers the year 2003 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

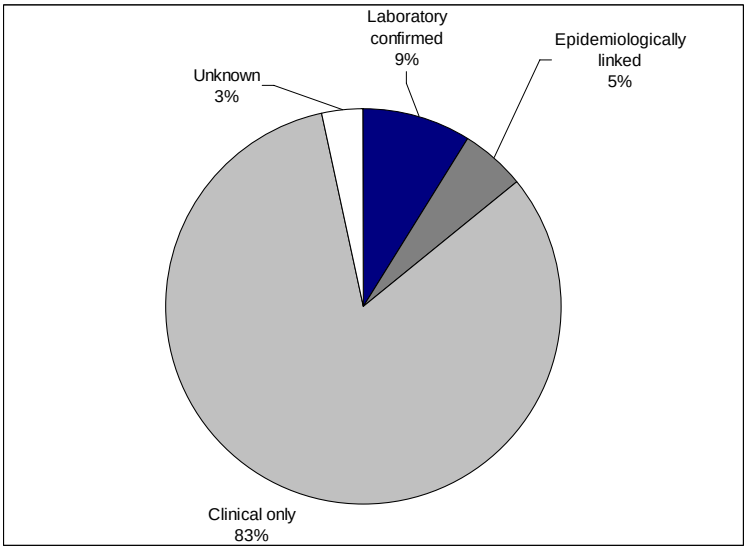
For 2003, 17 (89%) out of the 19 EUVAC.NET participating countries provided case-based data. With the exception of Belgium data were obtained through mandatory notification systems. In the remaining two countries, Austria reported aggregated data with number of cases by month and France provided sentinel surveillance data. In addition to case-based data Switzerland and Italy also provided sentinel surveillance data.

Data analysis is based on cases with disease onset in 2003. In 542 of case-based reports (4%) this information was not available. Instead these cases were included on the basis of their date of notification or date of collection of laboratory sample in 2003. In some countries minor discrepancies with nationally reported data may arise if these include cases notified in 2003 but with disease onset in 2002. Incidence rates were based on population statistics for 2003 obtained from the Population Information page on the WHO website for the Computerized Information System for Infectious Diseases (CISID), http://cisid.who.dk/Reference/POPQuery.asp.

Incidence – notifications and laboratory data

EUVAC.NET gatekeepers reported a total of 13,696 measles cases giving a crude incidence of 4.15 per 100,000 inhabitants. Data on 13,652 of these were case-based and were classified as seen in Figure 1. Data on the rest of the cases (44) were aggregated.

Figure 1. *Reported measles cases by classification (n=13,652)*



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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 Italy followed by Ireland.

Table 1. *Reported measles cases and laboratory confirmed cases by country, 2003 (n=13,696)*

	No. of reported cases	*Crude incidence*	*Confirmed cases* as a % of no. reported*	*Laboratory confirmed as a % of total confirmed cases*
Austria [1]	44	0.55	n.r.	n.r
Belgium	44	0.43	48%	33%
Denmark	0	0	-	-
Finland	0	0	-	-
France [2]	-	-	-	-
Germany	778	0.95	70%	37%
Greece	8	0.08	0	-
Iceland	0	0	-	-
Ireland	561	14.33	18%	98%
Italy	10,939	19.07	0	-
Luxembourg	1	0.22	0	-
Malta	0	0	-	-
The Netherlands	4	0.02	75%	100%
Norway	8	0.18	100%	100%
Portugal	7	0.07	0	-
Spain	255	0.64	95%	98%
Sweden	3	0.03	33%	100%
Switzerland	575	8.03	95%	33%
United Kingdom	469	0.78	100%	99%
Total	***13,696***	***4.15***	***14%***	***62%***

[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 measles cases. No indigenous cases were reported from Denmark, Finland, Iceland, Malta and Sweden.

Table 2. *Reported incidence of indigenous measles cases by country, 2003*

Low incidence (< 0.1)	**Moderate incidence (0.1-1.0)**	**High incidence (>1.0)**
Denmark (0)	Austria (0.55)*	Ireland (14.33)
Finland (0)	Belgium (0.37)	Italy (19.07)
Greece (0.08)	Germany (0.93)	Switzerland (7.92)
Iceland (0)	Luxembourg (0.22)	
Malta (0)	Norway (0.11)	
The Netherlands (0.01)	Spain (0.61)	
Portugal (0.07)	UK (0.76)	
Sweden (0)		

* 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 12% of all reported cases. Of these, there were 1,261 outbreak-related cases reported in 2003 (Table 3) making up to 74% of those with a known status on outbreak and 9% of all reported cases. Most outbreak cases were reported from Switzerland (41%) followed by Germany (33%). No data from Italy was available on outbreak status through the mandatory notification system. However, data from the paediatric sentinel surveillance system (Sorveglianza Pediatri Sentinella, http://www.spes.iss.it/) showed another epidemic wave of measles in 2003.[1]

Importation status was reported in 11% of all reported cases (Table 3). Of these, there were 67 imported cases amounting to 4% of all cases with known importation status. Thirty cases (45%) were imported from another European country. There were 37 imported cases (55%) from other continents including 17 from Africa, 14 from Asia, five from the Middle East and one from North America.

Table 3. *Reported measles cases: hospitalised, outbreak related and imported, by country, 2003 (n=13,652)*

	No. of reported cases	**Hospitalised cases**		**Outbreak-related cases**		**Imported cases**	
		No. (%)	*% unknown / no data*	*No. (%)*	*% unknown / no data*	*No. (%)*	*% unknown / no data*
Austria [1]	44	n.r.	-	n.r.	-	n.r.	-
Belgium	44	1 (3)	18%	15 (43)	20%	6 (18)	23%
Denmark	0	0	-	0	-	0	-
Finland	0	0	-	0	-	0	-
France [2]	-	-	-	-	-	-	-
Germany	778	50 (6)	1%	416 (54)	0%	15 (3)	26%
Greece	8	5 (100)	38%	0	0%	0	0
Iceland	0	0	-	0	-	0	-
Ireland	561	10 (9)	81%	80 (96)	85%	0	87%
Italy	10,939	918 (10)	17%	0	100%	0	100%
Luxembourg	1	0	100%	0	0%	0	0%
Malta	0	0	-	0	-	0	-
The Netherlands	4	0	0%	2 (67)	25%	3 (100)	25%
Norway	8	2 (25)	0%	4 (50)	0%	3 (50)	25%
Portugal	7	0	14%	0	0%	0	0%
Spain	255	60 (28)	15%	227 (90)	2%	13 (5)	6%
Sweden	3	0	100%	0	0%	3 (100)	0%
Switzerland	575	37 (7)	2%	517 (99)	9%	8 (1)	6%
United Kingdom	469	61 (40)	67%	0	100%	16 (94)	96%
Total	***13,696***	***1144 (10)***	***20%***	***1261 (74)***	***88%***	***67 (4)***	***89%***

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

[1] Ciofi degli Atti M.L., Salmaso S., Vellucci L., De Stefano D. New measles epidemic in southern Italy: 1217 cases reported to sentinel surveillance, January-May 2003. Eurosurveillance Weekly 2003; 7(27).

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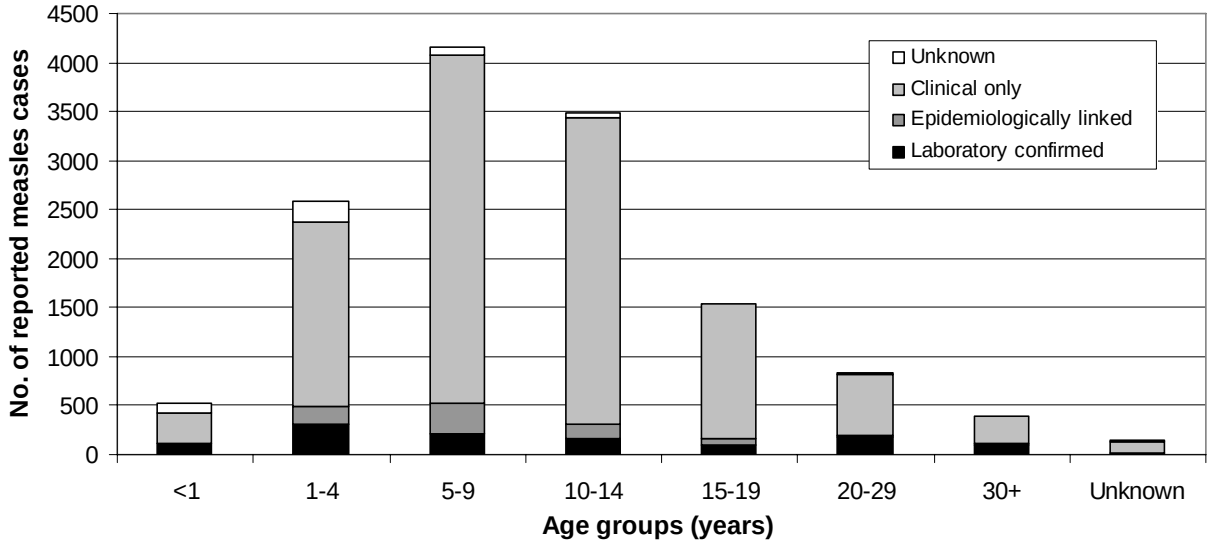
Age distribution and seasonality

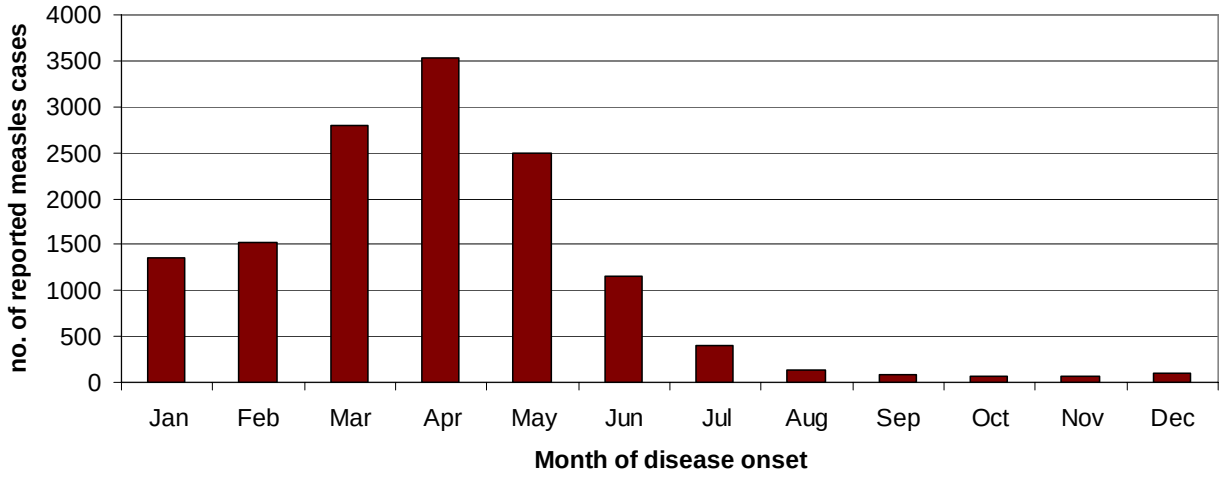
Measles was reported in both children and adults with most cases in the 5-9 year age group (Figure 2). These accounted for 30% of all reported cases, followed by the 10-14 (25%) and 1-4 (19%) year age groups. Those over the age of 20 years had the highest proportion of cases that were laboratory confirmed (23%), followed by children less than 4 years (14%).

Figure 2. *Notified measles cases by age group and confirmation status in 17 case-based reporting countries, 2003 (n=13,652)*



Overall, most cases (94%) were reported to occur in the first half of the year particularly during late winter and early spring (Figure 3).

Figure 3. *Number of reported measles cases by month of disease onset in 18 reporting countries, 2003 (n=13,696)*



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Vaccination status

Information on vaccination status was provided in 75% of the total measles cases (Figure 4). Ninety-one 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=13,652)*

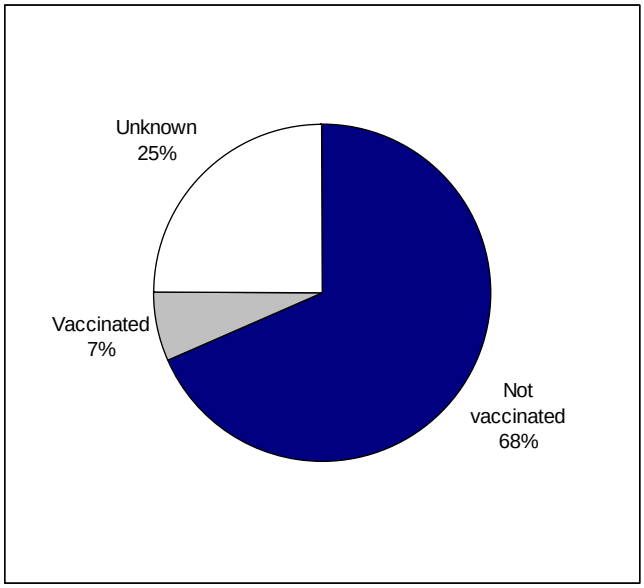

Table 4. *Vaccination status of reported measles cases by country, 2003 (n=13,652)*

	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	14 (48)	15 (52)	34%
Denmark	0	0	-
Finland	0	0	-
France [2]	-	-	-
Germany	499 (83)	99 (17)	23%
Greece	4 (100)	0	50%
Iceland	0	0	-
Ireland	163 (60)	107 (40)	52%
Italy	7659 (94)	531 (6)	25%
Luxembourg	0	0	100%
Malta	0	0	-
The Netherlands	4 (100)	0	0%
Norway	1 (33)	2 (67)	63%
Portugal	2 (29)	5 (71)	0
Spain	109 (66)	56 (34)	35%
Sweden	0	0	100%
Switzerland	467 (90)	52 (10)	10%
United Kingdom	399 (91)	38 (9)	7%
Total	***9321 (91)***	***905 (9)***	***25%***

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 80% of cases. There were 1,144 reported hospitalised cases in connection with measles (Table 3) amounting to 10% of all cases with known hospitalisation status. Of these, 80% were reported from Italy. Encephalitis was reported in seven cases giving an incidence of 51 per 100,000 measles cases. Three cases were reported from Switzerland, two from Germany and two from the UK. They were aged between 10 and 16 years. Four cases were unvaccinated and three cases were vaccinated with one dose.

One death attributed to measles was reported from Spain. This corresponds to an incidence of 7 per 100,000 measles cases. The case was a 32 year old female whose cause of death was pneumonia.

Data from Sentinel Surveillance Systems

In France the sentinel surveillance system is the only system in place for reporting measles cases. In 2003 it involved 280 general practitioners who reported 18 cases giving an extrapolated 10,400 cases nationwide and an incidence of 16 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 an extrapolated 1,100 cases and a crude incidence rate of 15 per 100,000 inhabitants. In Italy, a paediatric sentinel surveillance system for childhood vaccine-preventable diseases[2] involved 463 paediatricians caring for 3% of the paediatric population up to 14 years of age. The Italian paediatric sentinel surveillance system (SPES) reported 1326 cases giving a crude incidence rate of 544 per 100,000 children aged up to 14 years. The extrapolated incidence of 1,191 per 100,000 children in the southern Italian regions contrasts markedly with the incidence in the northern regions of the country with an incidence of 55 per 100,000 children.

Comments

Overall there has been a 42% drop in reported measles cases through national universal notification systems in EUVAC.NET participating countries in 2003 compared with 2002. This was mostly attributed to the decreased number of reported cases from Italy and Germany dropping by 40% and 83% respectively. Eight countries namely Denmark, Finland, Greece, Iceland, Malta, the Netherlands, Portugal and Sweden have reported indigenous measles incidence rates of less than 0.1 per 10^5 inhabitants per year possibly indicating a near-elimination situation.

As in 2002, the largest number of reported cases was in the 5-9 age group, contributing to 30% of the total cases reported. The number of reported cases in the 15-19 year age group increased significantly by 16 % over the previous year. As a proportion this age group contributes to 11% of the total reported cases compared with 6% in the previous year. The seasonal distribution was similar as in the previous year with most cases occurring in winter and spring. As in 2002, over 90% of measles cases occurred in unvaccinated individuals.

Reporters

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

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