



Surveillance of Bacterial Meningitis in Europe 1999/2000

Abridged Version

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1. Introduction

This is an abridged version of the Surveillance of Bacterial Meningitis in Europe report 1999/2000. The following facts and figures were the most up to date available at the time of compiling this report. The full version of the forty-seven-page report contains further epidemiological data, sections on trends, a review of outbreaks and reports on countries outside of Europe; including the USA, Australia and New Zealand. If you are interested in the complete document contact us using the details at the end of this report.

For this report twenty-nine European countries and one region provided information on cases of meningococcal disease. Ten countries reported pneumococcal and/or *H. influenzae* meningitis case data.

The EU now separately funds surveillance of meningococcal disease in EU countries. It is however, working closely with us on the surveillance of meningococcal disease in Europe, so there is no waste of resources. Data collected by the EU surveillance feeds into our own database, with the consent of the countries involved.

All **incidence rates** are based on reported infections and are **per 100,000** population **per year** unless otherwise stated. With a few exceptions, total numbers reported are likely to be incomplete. All incidence data have to be interpreted cautiously because of under reporting, especially where the rate is low. This report should be used to interpret trends rather than be used as an indicator of true incidences.

2. Methods

Most contributors report individual cases of bacterial meningitis and meningococcal disease in their country every quarter. A few countries still send in aggregated data, but now use a quarterly format. Most contributors send a common data set as an Excel file, either by diskette or e-mail. A few continue to complete hand-written forms. Data from EU countries goes to the

EU surveillance of meningococcal disease. Most countries have given permission for their data to be passed on to us in the detailed format used by the project. Others send the data to us separately in a format suitable for them. The data is transferred into a corresponding Excel spreadsheet. This functions as a template where data can be initially checked for coding and format standardisation. This is then imported into a password protected "Core" Access database for permanent storage. Selected data fields covering the required time period are then exported to a satellite "Reports" database where they can be temporarily stored for processing into reports without risk to the central data. Filter queries are used to further check and clean the data so that it can be exported as a set of standard Excel tables, as used in the quarterly reports, or an *ad hoc* Excel table designed as required.

Disease definitions are as follows:

Invasive meningococcal disease

Covers all meningococcal infections causing symptoms other than carriers/throat infections. ICD-10 codes: **A39.0 to A39.9**

Septicaemia

Covers the presence in the blood of meningococci and the symptoms of septicaemia. ICD-10 codes: **A39.2 to A 39.4**

Meningitis

Covers the presence in the CSF of meningococci and the symptoms of meningitis. ICD-10 code: **A39.0**

Both

Evidence of both septicaemia and meningitis on the basis of clinical diagnosis and/or laboratory tests.

For laboratory cases the diagnosis was confirmed by laboratory methods, either culture or non-culture. Notifications were based on clinical presentation and may or may not be confirmed by laboratory methods. Most of the data presented here are based on laboratory reports.

Core Data Set

For figures comparing reporting periods a core of 16 countries which have reported all four quarters in each reporting period has been used. The countries are Austria, Belgium, the Czech Republic, England & Wales, France, Germany, Greece, Iceland, Israel, Netherlands, Norway, Republic of Ireland, Scotland, Slovak Republic, Slovenia and Spain. This was done to provide a data set that would give a more reliable representation of possible changes in the epidemiology of McD over time. It also allows some assessment of the reliability of the current reporting system.

3. Results: Meningococcal Disease

3.1 Distribution, Incidence and Clinical Diagnosis

For the period July 1999 to June 2000, thirty countries from Europe contributed data. Twenty-nine European contributors reported a total of 8279 laboratory confirmed cases. For notifications, nine European contributors from the complete data set reported a total of 1333 cases. Twenty-five countries were eligible for inclusion in calculating an overall standardised incidence rate for Europe for laboratory confirmed cases. Four of the countries excluded provided only two quarters of data for the period covered by the report, and one only provided notifications. The countries included reported 8143 laboratory-confirmed cases of meningococcal disease, giving an overall age standardised incidence rate of 1.8. For the core data set the standardised incidence rate was 2.4. A total standardised incidence rate was also calculated for all the laboratory-confirmed cases. The incidence rate was 1.7, a little lower than either the complete or core data sets.

Incidence – Notifications and Laboratory data

For laboratory confirmed cases the age standardised incidence rate for meningococcal disease in Europe for 1999/2000 (table 1) varied from 0.05 in Romania to 9.8 in the Republic of Ireland. The incidence rate increased in both the European core and complete data sets between 1998/99 and 1999/2000, from 2.1 to 2.4 (core), and from 1.7 to 1.8 (complete). Austria, France, Iceland, Malta, Northern Ireland, the Republic of Ireland, Scotland, Slovenia and Spain all had higher incidence rates than in 1998/99. The data for Spain cannot be directly compared with previous years' data because a different source for laboratory confirmed cases was used in 1999/2000.

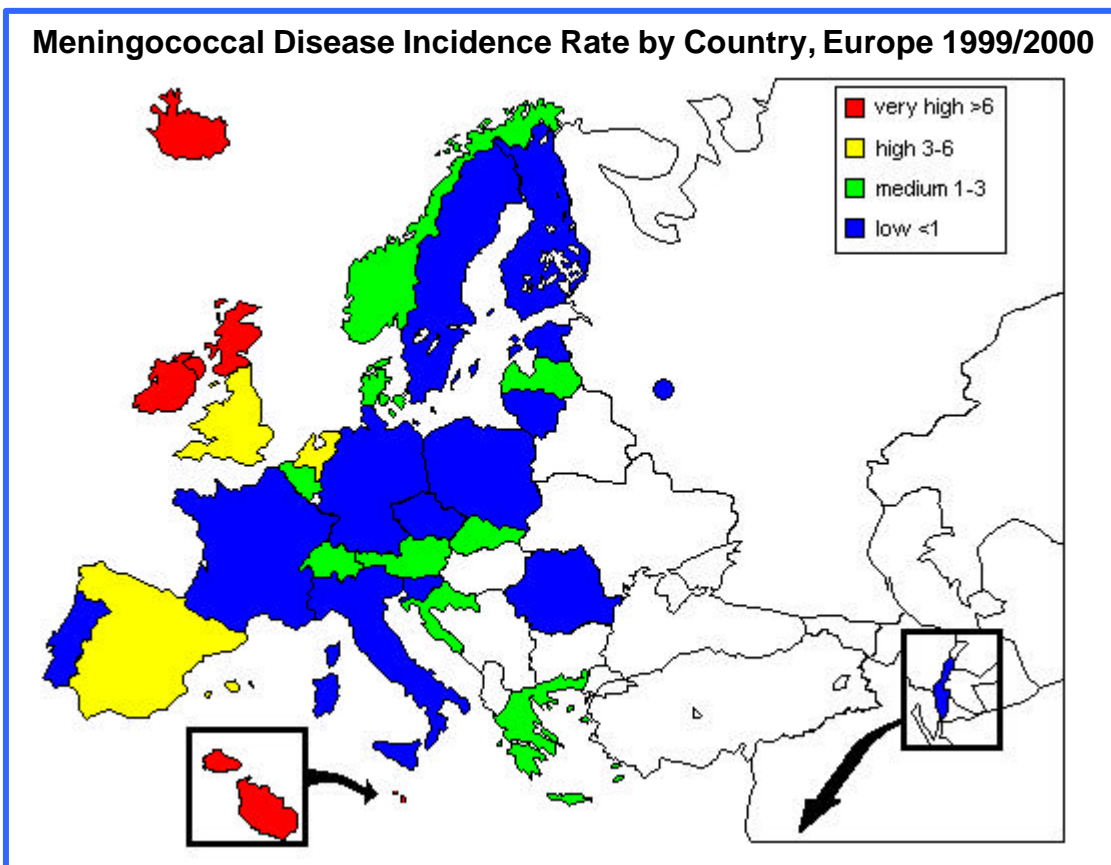


Table 1. Meningococcal Disease by country, Europe 1999/2000
Number of Cases and Incidence

Country	Laboratory Cases			Notifications		
	Number	Crude Incidence	Age Standard -ised Incidence	Number	Crude Incidence	Age Standard -ised Incidence
Austria *	93	1.2	1.2			
Belgium *	281	2.8	2.8			
Croatia				58	1.2	1.2
Czech Republic *	77	0.7	0.7			
Denmark †	28	1.1	-			
England & Wales *	2798	5.4	5.1			
Estonia	8	0.5	0.5			
Finland	47	0.9	0.9			
France *	498	0.9	0.9			
Germany *	415	0.5	0.6			
Greece *	139	1.4	1.3	264	2.6	2.7
Iceland *	21	7.8	6.6			
Israel *†	25	0.6	-			
Italy	230	0.4	0.4			
Latvia	13	0.5	0.4	21	0.8	1.0
Lithuania	14	0.4	0.4	70 ‡	1.9	n/a
Malta	29	7.9	6.9			
Netherlands *	551	3.6	3.5			
Northern Ireland	137	8.3	6.8	114†	6.9	5.9
Norway *	83	1.9	1.8			
Poland	51	0.1	0.1			
Republic of Ireland *	457	13.0	9.8	554	15.7	12.6
Romania	11	0.05	0.05	172 ‡	0.8	n/a
Russia Moscow †	57	1.0	-			
Scotland *	381	7.4	7.1			
Slovak Republic *	67	1.2	1.1	72	1.3	1.2
Slovenia *	7	0.4	0.3	8	0.4	0.4
Spain *	1561	4.0	4.0			
Sweden †	24	0.5	-			
Switzerland	176	2.4	2.6			
Total	8279	1.8	1.7	1333	-	-
Complete data §	8143	1.9	1.8			
Core data	7380	2.4	2.4			

* Member of core data set (16 countries)

† Number of cases two quarters out of four only. IR is estimate for four quarters. No standardised value available.

‡ Complete age data not available so not possible to standardise.

§ 25 countries

Clinical Diagnosis and Case Fatality Rate

The ratio of septicaemia to meningitis showed considerable variation between countries, which may be due to diagnostic convention or real differences. Overall, the clinical presentation was 40% meningitis alone, 41% septicaemia alone and 16% a combination of both. 1% (86 cases) were designated “meningitis/septicaemia not specified”. Of the remaining cases, 2% (130 cases) had a stated clinical diagnosis. These included 13 cases of arthritis, 11 cases of conjunctivitis, 5 cases of otitis, and 3 cases of pneumonia, with the remaining cases designated “other”. Nine cases recorded as purpura were re-coded as septicaemia. For laboratory confirmed data the case fatality rate for “meningitis only” was 6.1% (141 fatalities), for “septicaemia only” 7.6% (179 fatalities) and for cases of combined septicaemia and meningitis 6.5% (59 fatalities). The rate for those “not specified” was 1.2% and for “other” 8.5%. The overall CFR for laboratory confirmed cases was 6.9%.

3.2 Age

The age distribution shown by core data set countries (figure 1 and Table 2) was as expected, with the main peak in infancy. The secondary teenage peak was still present. From 1998/99 to 1999/2000 the incidence rate increased in most age groups. This increase ranged from 8% for 10 to 14 years to about 50% for 25 to 44 years. The increase in the 15–19 year olds was only 9% compared with an overall increase of 14%. Increases of 21% in incidence in those aged 1-11 months, and of 20% in 1–4 year olds are more important because of the large numbers in these age groups.

How Representative is the Complete Group?

The core group represents greater completeness and continuity of reporting. The overall incidence of meningococcal disease in the core group is possibly nearer the true incidence in Europe than the complete group. Nevertheless A comparison of the age distributions in the two sets of data can be used to assess how representative reports are from countries not in the core group. These show (figure 1) that the ratio of core/complete incidence rates in each age group is consistently 1.4 – 1.5. The exceptions are those aged under 1 month (1.2) in which the complete group is slightly over represented (and this may be real), and 20 to 24 year olds (1.3) Thus although the incidence in the core-group countries is consistently higher, the age distributions are similar in the two groups.

Table 2. Incidence Rate of Laboratory Confirmed Cases of Meningococcal Disease in the Core Data Set, by Age, for 1997/98, 1999/99 and 1999/2000

	<1 month	1 to 11 months	1 to 4 years	5 to 9 years	10 to 14 years	15 to 19 years	20 to 24 years	25 to 44 years	45 to 64 years	65+ years	Overall
1999/00	5.6	38.6	14.4	4.6	2.8	4.7	1.7	0.6	0.7	0.7	2.4
1998/99	6.2	31.8	12.0	3.5	2.6	4.3	1.5	0.4	0.5	0.6	2.1
1997/98	3.8	21.2	8.3	3.0	1.8	2.9	1.2	0.3	0.3	0.4	1.5

Figure 1. Incidence of Laboratory Confirmed Cases of Meningococcal Disease in Europe 1999/2000 by Age Group

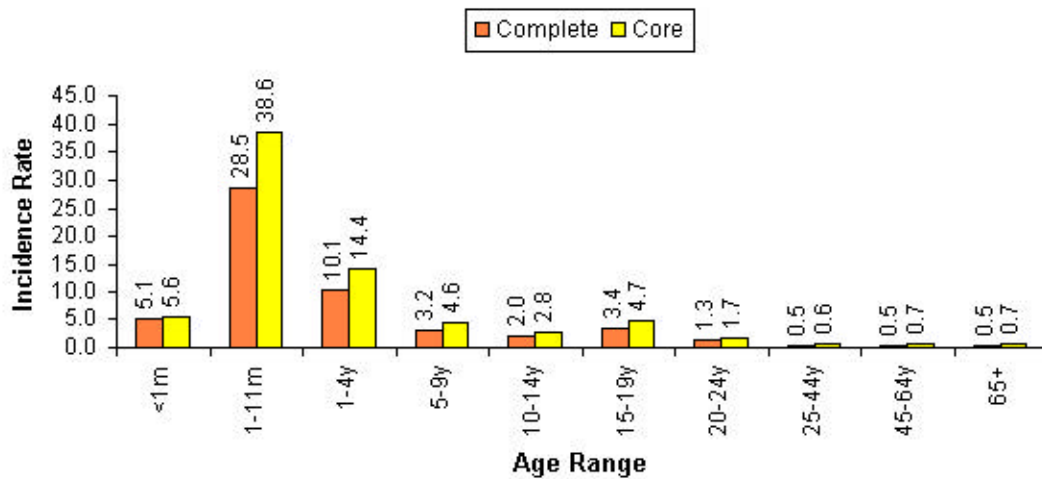
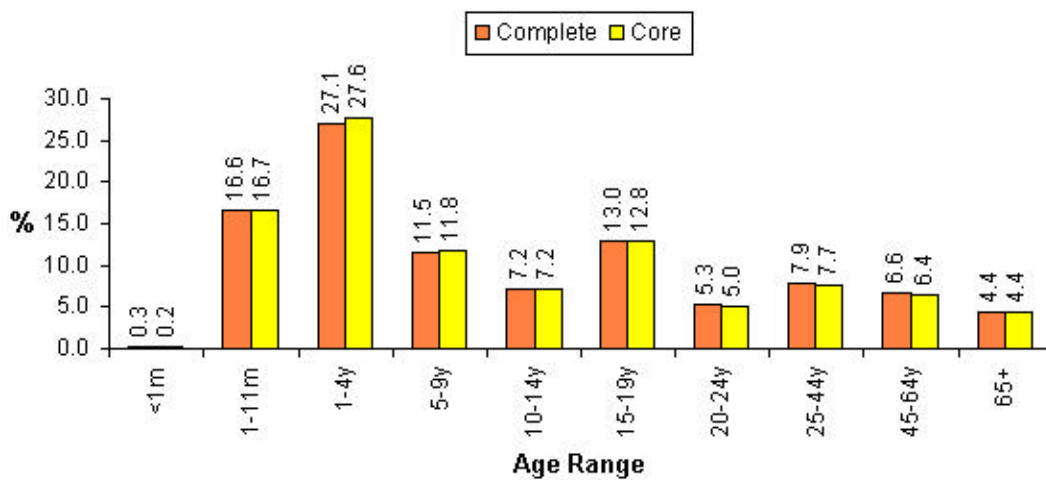


Figure 2. Distribution (%) of Laboratory Confirmed Cases of Meningococcal Disease in Europe 1999/2000 by Age Group,



3.3 Case Fatality Rate

As in previous years the case fatality rate (CFR) increased with age (table 3 and Figure 3). A Jshaped pattern was more prominent this year than in previous years. Case fatality rates have to be interpreted with caution. Overall, the outcome was reported in 49% of the cases (table 4). The reported CFR for Europe in 1999/2000 was higher than in 1998/99, at 6.9% for the complete data and 7.0% for the core data set. For some countries only two quarters' data were provided. Between countries considerable variation was seen in the CFR. The rate where outcome was known varied from 3.5% in Russia Moscow, through 14.3% in Iceland and Latvia, to more than 20% in Germany. The rate was also higher than 20% in Estonia and Slovenia, though these are both countries with small numbers of cases. High case fatality rates may reflect better reporting of more severe cases, while very low rates may indicate that some deaths occurred after diagnosis was made and the case reported.

Table 3. Case Fatality Rate (%) of Laboratory Confirmed Cases by Age Group for 1999/00 and 1998/99, Core Data Set

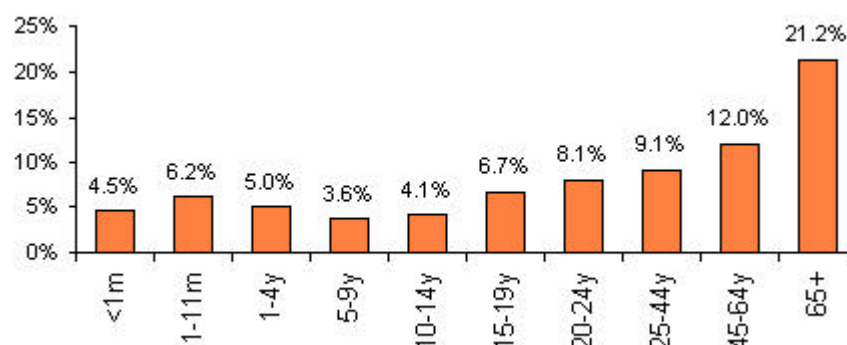
	<1 month	1 to 11 months	1 to 4 years	5 to 9 years	10 to 14 years	15 to 19 years	20 to 24 years	25 to 44 years	45 to 64 years	65+ years	Total
1999/00	20.0%	7.2%	6.4%	4.4%	3.2%	9.2%	9.5%	6.8%	16.7%	19.5%	7.0%
1998/99	5.6%	5.9%	5.5%	3.0%	4.2%	8.1%	7.0%	8.3%	11.4%	15.0%	6.6%

Table 4. Meningococcal Disease Case Fatality Rate by Country, Europe 1999/2000

Country	Total Cases	Known Survived	Known Died	Cases of Known Outcome	Rate of reporting	CFR – Total Cases	CFR – Known Outcome
Austria	93	86	7	93	100%	7.5%	7.5%
Belgium	281	115	14	129	46%	5.0%	10.9%
Croatia	58	26	1	27	47%	1.7%	3.7%
Czech Republic	77	69	8	77	100%	10.4%	10.4%
Denmark	28	28	0	28	100%	0.0%	0.0%
England & Wales	2798	0	194	194	7%	6.9%	-
Estonia	6	6	2	8	133%	33.3%	25.0%
Finland	47	0	2	2	4%	4.3%	-
France	498	236	35	271	54%	7.0%	12.9%
Germany	415	95	26	121	29%	6.3%	21.5%
Greece	264	244	20	264	100%	7.6%	7.6%
Iceland	21	18	3	21	100%	14.3%	14.3%
Israel	25	0	0	0	-	-	-
Italy	230	135	18	153	67%	7.8%	13.3%
Latvia	21	18	3	21	100%	14.3%	14.3%
Lithuania	70	13	0	13	19%	0.0%	0.0%
Malta	29	26	3	29	100%	10.3%	10.3%
Netherlands	551	0	31	31	6%	5.6%	-
Northern Ireland	137	126	5	131	96%	3.6%	3.8%
Norway	83	44	5	49	59%	6.0%	10.2%
Poland	51	0	0	0	-	-	-
Republic of Ireland	554	528	26	554	100%	4.7%	4.7%
Romania	172	10	0	10	6%	0.0%	0.0%
Russia Moscow	57	55	2	57	100%	3.5%	3.5%
Scotland	381	335	29	364	96%	7.6%	8.0%
Slovak Republic	72	64	8	72	100%	11.1%	11.1%
Slovenia	8	6	2	8	100%	25.0%	25.0%
Spain	1561	1369	129	1498	96%	8.3%	8.6%
Sweden	48	48	0	48	100%	0.0%	0.0%
Switzerland	176	68	14	82	47%	8.0%	17.1%
Total	8812	3768	587	4355	49%	6.9%*	13.5%

* This is the CFR for the complete data set and is shown to avoid confusion. The CFR would be 6.7 if calculated from this table.

Figure 3. Fatality Rate of Meningococcal Disease in Europe 1999/2000 by Age Group, Complete Data Set



3.4 Serogroups

Serogroup B and C disease together accounted for 95% of cases in Europe (table 5), with serogroup B predominant (63% of grouped strains). The proportion of serogroup C isolated varied by country (tables 5 and 6). Countries with 40% serogroup C or higher included Iceland, Northern Ireland, Russia (Moscow), the Slovak Republic, Spain and Switzerland. Compared with 1998/99 this represents an important change for Spain and Switzerland. Countries with less than 20% serogroup C strains were Austria, Denmark, Israel, Italy, the Netherlands and Norway. All these countries had correspondingly high proportions of serogroup B strains, except for Israel where 20% of the grouped cases were attributable to serogroup Y. In previous years (since 1996), in both the Czech and Slovak Republics, serogroup C predominated. This year, for the first time since our reports began, the Czech Republic has converted to the European pattern.

Serogroup A accounted for only 0.3% of the total cases in Europe, but in Greece, Romania (small numbers) and Moscow it accounted for more than 10% of their cases. Likewise, serogroup Y comprised a small percentage of the total (1.3%), but accounted 20% of cases in Israel. England and Wales, France, Germany and the Netherlands each had more than 10 cases of serogroup W135 infection.

The case fatality rate for each serogroup varied. Serogroup A had the highest rate (14.3%) followed by W135 (10.8%), C (8.0%) and Y (4.5%). Serogroup B had the lowest rate (4.3%).

Table 5. Countries with >40% Serogroup C - Last Three Reporting Periods

1997/98		1998/99		1999/2000	
Czech Republic	(59%)	Czech Republic	(55%)	Iceland	(53%)
Greece	(49%)	Estonia*	(62%)	Russia (Moscow)	(44%)
Iceland	(52%)	Iceland	(50%)	Slovak Republic	(62%)
Scotland	(47%)	Scotland	(52%)	Switzerland	(61%)
Slovak Republic	(78%)	Slovak Republic	(74%)		
Spain	(45%)				
Switzerland	(46%)				

* 2 out of 3 cases

Table 6. Serogroup Distribution by Country, Europe 1999/2000

		A		B		C		NGA		W135		Y		Other	Total	
Austria			67	77%	16	18%	1	1%	1	1%	2	2%			87	
Belgium			179	67%	80	30%			3	1%	3	1%	1	<1%	266	
Czech Republic			42	66%	21	33%					1	2%			64	
Denmark			23	82%	5	18%									28	
England & Wales		1	<1%	1628	61%	891	34%	1	<1%	96	4%	28	1%	6	<1%	2651
Estonia			3	100%											3	
Finland			27	60%	12	27%	1	2%	3	7%	2	4%			45	
France		2	<1%	313	67%	100	21%	2	<1%	40	9%	10	2%	1	<1%	468
Germany			280	68%	102	25%	3	1%	13	3%	15	4%	1	<1%	414	
Greece	N	7	11%	38	58%	15	23%	1	2%	4	6%				65	
Iceland			9	47%	10	53%									19	
Israel			15	60%	3	12%			1	4%	5	20%	1	4%	25	
Italy			74	71%	30	29%									104	
Latvia	N		5	56%	3	33%			1	11%					9	
Lithuania	N		3	60%	1	20%					1	20%			5	
Malta			11	69%	1	6%	2	13%	2	13%					16	
Netherlands			429	78%	97	18%			16	3%	4	1%	2	<1%	548	
Northern Ireland			71	53%	53	40%	9	7%	1	<1%					134	
Norway			62	77%	10	12%	1	1%	4	5%	4	5%			81	
Poland			37	74%	10	20%			3	6%					50	
Republic of Ireland	N		278	61%	167	37%	7	2%	2	<1%	3	1%			457	
Romania		2	18%	6	55%			3	27%						11	
Russia Moscow		5	14%	15	42%	16	44%								36	
Scotland			126	57%	84	38%	1	<1%	6	3%	3	1%	2	1%	222	
Slovak Republic	N		19	32%	39	66%	1	2%							59	
Slovenia	N		4	57%	1	14%			2	29%					7	
Spain		2	<1%	591	59%	398	40%						15	1%	1006	
Sweden			11	50%	6	27%					5	23%			22	
Switzerland			45	33%	82	61%			5	4%	3	2%			135	
Total		19	<1%	4411	63%	2253	32%	33	<1%	203	3%	89	1%	29	<1%	7037
USA		6	1%	216	31%	204	29%	6	1%	17	2%	224	32%	32	5%	705

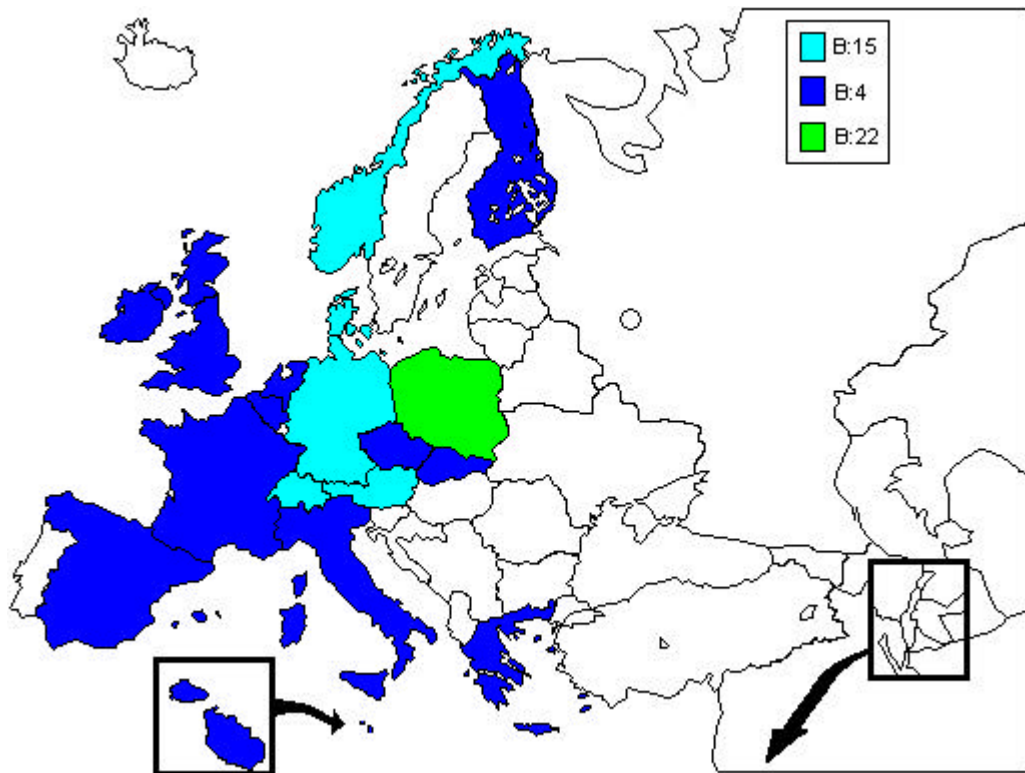
N Notification data

3.5 Predominant Serotype and Strains

In the countries that provided data on serotypes (table 7) type B: 4 was the most reported overall of serogroup B, followed by B: 15. Type C: 2a was the most reported overall of serogroup C, followed by C: 2b. The country where this was not the case was Poland, where the most numerous serogroup B type was B: 22. Also the only C types isolated in Poland were C: 22 and C: 21. The predominant serotypes of serogroups B and C are shown geographically (figure 4). Of the other serogroups only W135 and Y generated subtyped isolates in any significant number. The most reported subtypes were W135: 2a (n = 71) and Y: 14 (n = 35), and the most reported strains were W135: 2a: P1.2, 5 (n = 62) and Y: 14: P1.5 (n = 13). All the main serogroups had a predominant sero/subtype combination strain (table 7). These were B: 4: P1.4, C: 2a: P1.5, W135: 2a: P1.2, 5 and Y: 14: P1.5 respectively. The predominant strain for serogroups B and C varied between countries (table 8).

Figure 4. The Distribution of Predominant Serotypes in Europe 1999/2000

Serogroup B



Serogroup C

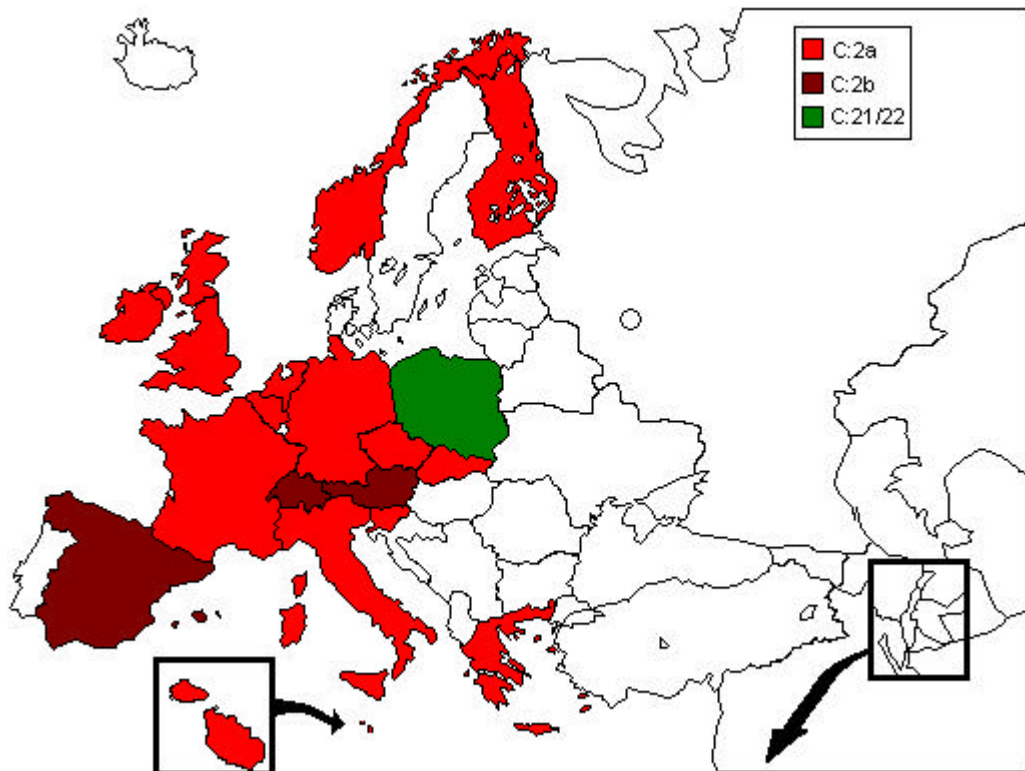


Table 7. Top Five Overall Most Numerous Meningococcal Strains for Serogroup B, Serogroup C and Other Serogroups, Europe 1999/2000

Serogroup B		Serogroup C		Other Serogroups	
Strain	No.	Strain	No.	Strain	No.
1 B: 4: P1.4	518	C: 2a: P1.5	352	W135: 2a: P1.2,5	62
2 B: 15: P1.7,16	152	C: 2a: P1.2,5	237	Y: 14: P1.5	13
3 B: 4: P1.15	121	C: 2b: P1.2,5	167	W135: 2a: P1.2	5
4 B: 1: P1.14	46	C: 2a: P1.2	58	Y: 14: P1.2,5	5
5 B: 4: P1.10	35	C: 2b: P1.2	23	Y: 4: P1.4	3

Table 8. Most Numerous Meningococcal Serotypes and Strains by Country, Europe 1999/2000

Country	Serogroup B				Serogroup C			
	Type	n	Strain	n	Type	n	Strain	n
Austria	15	23	B: 15: P1.7,16	16	2b	7	C: 2b: P1.2	3
Belgium	4	105	B: 4: P1.4	62	2a	35	C: 2a: P1.2,5	22
Czech Republic	4	10	B: 4: P1.15	5	2a	11	C: 2a: P1.2,5	9
Denmark	15	13	No subtyping					
England & Wales	4	356	B: 4: P1.4	213	2a	385	C: 2a: P1.5	205
Finland	4	7	B: 4: P1.4	2	2a	2	C: 2a: P1.5	2
			B: 2a: P1.2,5	2				
France	4	37	B: 15: P1.7,16	17	2a	15	C: 2b: P1.2	6
Germany	15	72	B: 15: P1.7,16	37	2a	33	C: 2b: P1.2,5	20
Greece	4	9	B: 4: P1.14	4	2a	10	C: 2a: P1.2	3
Italy	4	18	B: 4: P1.13	8	2a	12	C: 2a: P1.5	10
			B: 14: P1.13	8				
Malta	4	7	B: 4: P1.15	4	2a	1	No subtyping	
Netherlands	4	270	B: 4: P1.4	142	2a	65	C: 2a: P1.5	30
Northern Ireland	4	7	B: 4: P1.4	6	2a	25	C: 2a: P1.5	14
Norway	15	27	B: 15: P1.7,16	10	2a	7	No most numerous	
Poland	22	6	B: 22: P1.14	3	21	1	No most numerous	
					22	1		
Republic of Ireland	4	38	B: 4: P1.4	24	2a	52	C: 2a: P1.2,5	29
Scotland	4	18	B: 4: P1.4	13	2a	45	C: 2a: P1.5	34
Slovak Republic	4	4	B:4:P1.15	2	2a	31	C: 2a: P1.2,5	17
Slovenia					2a	1	No subtyping	
Spain	4	51	B: 4: P1.15	38	2b	48	C: 2b: P1.2,5	39
Switzerland	15	11	B: 15: P1.7,16	4	2b	47	C: 2b: P1.2,5	41

3.6 Antibiotic Resistance

For this report 19 countries provided resistance data (table 9). Eighteen countries provided data on penicillin, fifteen on rifampicin and thirteen on sulphonamide. As in the previous report, only a handful of samples in a small number of countries tested as resistant to either penicillin or rifampicin. Resistance to penicillin was only shown in five of the eighteen reporting countries while resistance to rifampicin only appeared in one. The European

figures for penicillin, rifampicin and sulphonamide resistance were similar to those for 1998/99.

Table 9. Percentage of Resistant Meningococcal Isolates to Penicillin, Rifampicin and Sulphonamide by Country, Europe 1999/2000

Country	N	Penicillin		Rifampicin		Sulphonamide	
		n	%	n	%	n	%
Austria	70	0	-	0	-	56	80.0
Belgium	263	0	-	0	-	98	37.3
Czech Republic	58	0	-	0	-	12	20.7
Denmark	28	3	10.7	n/a		22	78.6
Germany	415	2	0.5	4	1.0	n/a	
Greece	48	0	-	0	-	42	87.5
Iceland	19	0	-	0	-	7	36.8
Israel	24	0	-	0	-	n/a	
Italy	-	1/18	5.3	0/20	-	4/15	26.7
Latvia	2	0	-	n/a		n/a	
Lithuania	-	1/9	11.1	0/3	-	1/1	100
Netherlands	545	0	-	0	-	n/a	
Poland	51	0	-	0	-	n/a	
Republic of Ireland	133	n/a		n/a		21	15.0
Romania	11	0	-	0	-	11	100
Scotland	148	0	-	0	-	21	15.0
Slovenia	6	0	-	0	-	3	50.0
Spain	207	0	-	0	-	168	81.2
Sweden	22	1	4.5	n/a		11	50.0
Switzerland	133	8	6.0	0	-	n/a	
Totals: 1999/2000		16 *	0.8	4 †	0.2	477 ‡	47.3
<i>Totals: 1998/99</i>			<i>0.8</i>		<i>0.2</i>		<i>48.3</i>

* Nineteen countries used for total

† Sixteen countries used for total

‡ Thirteen countries used for total

n/a no data available

NB: Italy - 1 case out of 18 tested showed resistance to penicillin, 0 cases out of 20 showed resistance to rifampicin and 4 cases out of 15 tested showed resistance to sulphonamide.

Lithuania - 1 case out of 9 tested showed resistance to penicillin, 0 cases out of 3 showed resistance to rifampicin and 1 case out of 1 tested showed resistance to sulphonamide.

4. Results: *Haemophilus influenzae* and Pneumococcal Meningitis

Eight countries reported *H. influenzae* and pneumococcal meningitis case data. One country reported only *H. influenzae* data and one country reported only pneumococcal data. Some of the data are incomplete, as in previous years. The incidence rate for *H. influenzae* meningitis ranged from 0.02 in Norway to 0.70 in Slovenia. The incidence rate for pneumococcal meningitis ranged from 0.07 in Poland to 1.06 in the Netherlands. Four deaths were

reported from *H. influenzae* meningitis (CFR 3.4%), and twenty-seven deaths were reported from pneumococcal meningitis (CFR 6.8%). Most cases of pneumococcal and *H. influenzae* meningitis reported by each country occurred in the 1st and 2nd quarters of 1999 (table 10).

The age distribution of the *H. influenzae* cases showed a characteristic peak in children aged 1 to 4 years in this period. Again there was a larger percentage of cases in children aged 1 to 11 months than in the previous period. In a similar pattern to the previous period more than 75% of *H. influenzae* meningitis cases occurred in children less than 5 years of age (figure 5). Around two thirds of the pneumococcal meningitis cases reported occurred in adults over 24 years of age. Most of the remaining pneumococcal cases (22%) were in children aged less than 5 years (figure 6).

Twenty-six *H. influenzae* meningitis isolates were confirmed as type b, with 1 case each confirmed as types e, f and non-b. 182 cases of pneumococcal meningitis isolates had their serogroup confirmed. Twenty-four different serogroups were identified (figure 7).

Table 10. Combined Laboratory Confirmed and Notified Cases of *Haemophilus influenzae* and Pneumococcal Meningitis, Europe 1999/2000

	1999		2000		Total Cases	Crude Incidence
	3rd	4th	1st	2nd		
<i>Haemophilus Influenzae</i>						
Greece	1	0	3	0	4	0.04
Italy	11	20	-	-	31	0.05
Netherlands *	4	0	8	8	20	0.13
Norway	0	1	-	-	1	0.02
Poland	5	5	7	5	22	0.06
Republic of Ireland *	2	0	-	-	2	0.06
Russia Moscow	6	5	-	-	11	0.13
Slovak Republic	6	2	1	3	12	0.22
Slovenia	4	10	-	-	14	0.70
Pneumococcal Meningitis						
Greece	6	15	21	5	47	0.46
Iceland	1	0	-	-	1	0.37
Italy	15	61	-	-	76	0.13
Netherlands	24	-	84	56	164	1.06
Poland	3	5	12	6	26	0.07
Republic of Ireland	2	6	-	-	8	0.23
Russia Moscow	17	17	-	-	34	0.39
Slovak Republic	9	8	13	6	36	0.67
Slovenia	2	2	-	-	4	0.20

* Routine Hib vaccination programme in this country.

Figure 5. Age Distribution (%) of *Haemophilus influenzae* Meningitis Cases, Europe 1999/2000

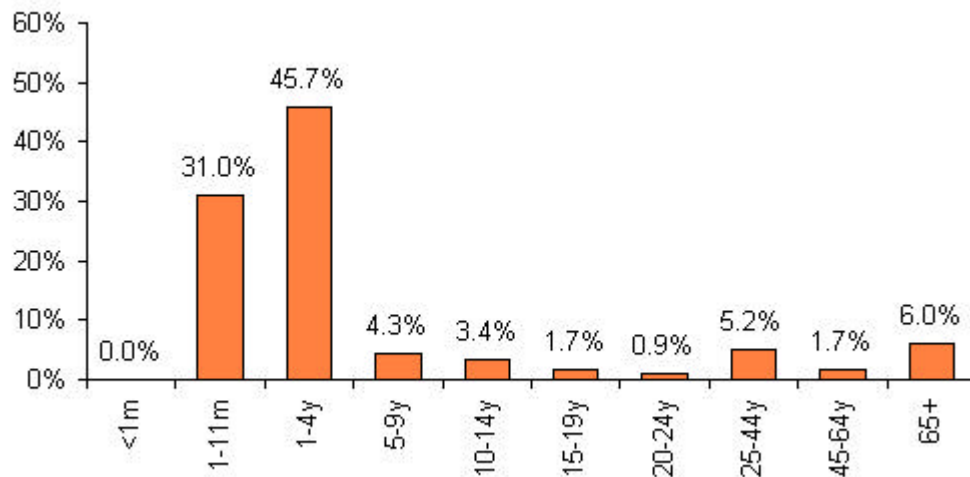


Figure 6. Age Distribution of Pneumococcal Meningitis Cases, Europe 1999/2000

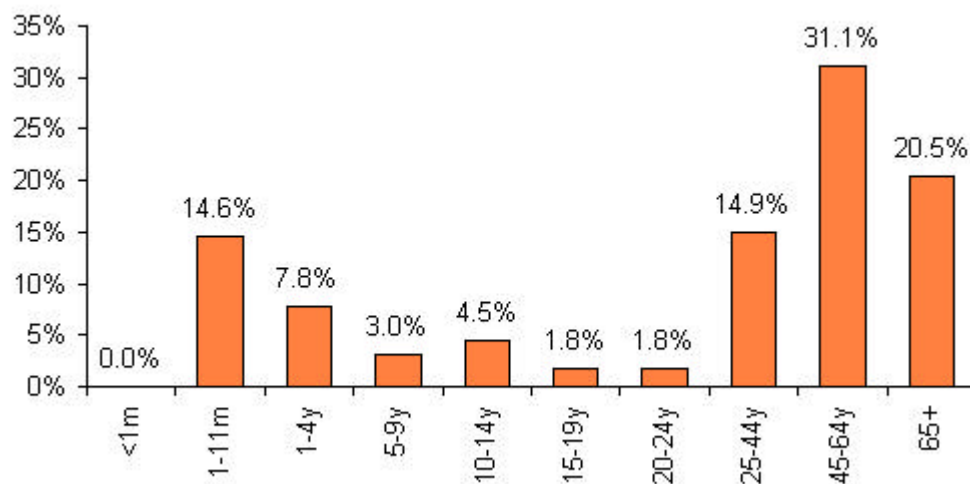
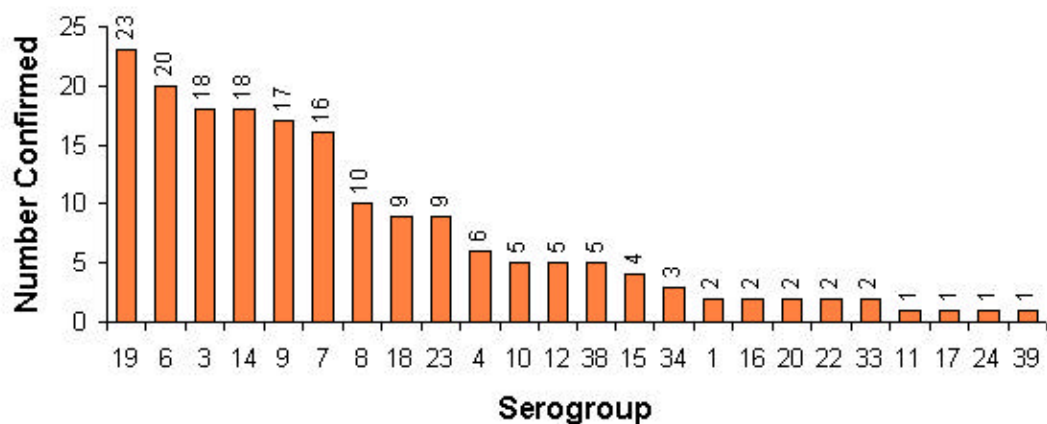


Figure 7. Number of Pneumococcal Meningitis Cases reported by Confirmed Serogroup, Europe 1999/2000



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