



Introduction

The following preliminary mumps surveillance report aims to provide an overview of selected epidemiological characteristics of mumps at European level for 2008.

Methods

We requested mumps epidemiological aggregated data for 2008 consisting of the number of cases in specified age-groups. These were categorised by number of vaccines received and diagnosis classification status i.e. clinical, laboratory-confirmed, and epidemiologically linked. Our assessment included countries' epidemiological data obtained through mandatory notification systems covering total national populations for 2008. Data from the Netherlands were not collected as a national mandatory notification system for mumps was only introduced in December 2008.

All reported mumps cases meeting the requirements for national surveillance including clinical, laboratory-confirmed and epidemiologically linked cases were analysed. Incidence was calculated with the number of reported mumps cases as the numerator and the country population obtained from Eurostat¹ as the denominator. Incidence by age-group was also calculated. We expressed incidence of disease as mumps cases per 100,000 inhabitants per year.

Results

Mumps incidence

A total of 20,634 mumps cases was reported from 25 countries that provided epidemiological data based on mandatory notification systems covering total country population for 2008 (table 1). The incidence category of reported mumps per 100,000 inhabitants is shown in figure 1. Most cases were reported from Bulgaria and Spain contributing to 27% and 18%, respectively. The highest annual incidence rates were reported from Bulgaria and Ireland with 73.1 and 8.2 per 100,000 inhabitants, respectively (figure 1).

Age distribution

Data on the specified age-groups was known in 20,122 cases (98%). These were distributed between age-groups with 85 (0.4%) aged <1 year, 1,863 (9.3%) aged 1-4 years, 3,846 (19.1%) aged 5-9 years, 3,003 (14.9%) aged 10-14 years, 3,498 (17.4%) aged 15-19 years and 7,827 (38.9%) older than 20 years.

Vaccination status

Figure 2 shows the age distribution of mumps cases with a known vaccination status which was known in 12,491 (61%) of all reported mumps cases. Of these, 2,998 (24%) were unvaccinated, 3,306 (26%) were vaccinated with one dose, 2,536 (20%) were vaccinated with at least two doses, and 3,651 (29%) were vaccinated with an unspecified number of doses. Table 2 shows the number and proportion of mumps cases by vaccination status for each country.

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

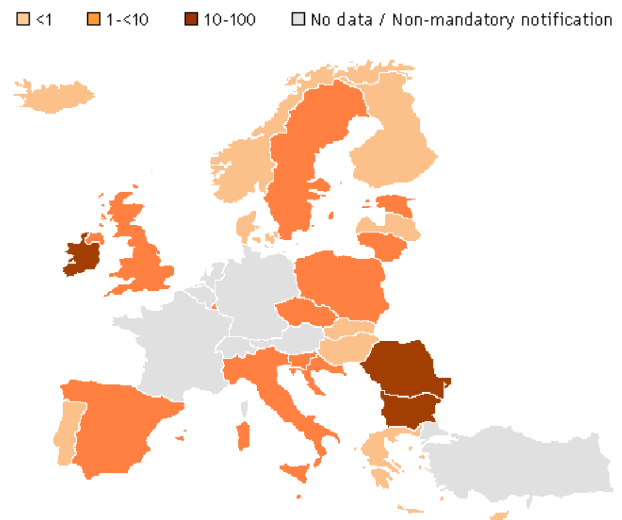
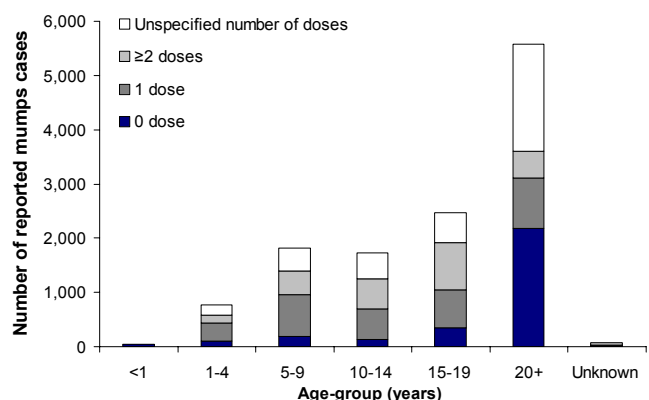


Figure 2. Mumps cases with a known vaccination status by age-group, 2008 (n=12,491)



Hospitalisations and complications

Data on hospitalisation status was provided from 19 countries reporting (table 2). A total of 1,774 cases (12%) were hospitalised. Information on the number of cases with complications related to mumps was provided from 14 countries (table 2) where a total of 774 cases (4%) were reported.

Comments

There has been an overall decrease in the number of mumps cases reported at European level during 2008 compared with the previous year. This is attributed to the marked decrease in reported cases from Spain, Romania and the Czech Republic. However, at the same time, marked increases in reported mumps cases occurred in Ireland² and Bulgaria. Outbreaks have been documented in Luxembourg,³ the Netherlands,⁴ and Wales (UK).⁵ A large outbreak in Moldova⁶ that started in 2007 continued into 2008.

Comparisons of the number of mumps cases and incidence rates between countries have to be made with caution because of different reporting procedures—some countries reported only laboratory-confirmed cases whereas others reported clinical cases without laboratory confirmation.

Additionally, the variation across Europe with which national mumps vaccination programmes were introduced and implemented, and the differing levels of vaccine coverage achieved, has resulted in the wide-ranging incidence rates observed.

The relatively large proportions of reported cases that had received one dose (26%) and at least two doses (20%), suggests that partial mumps vaccine effectiveness and waning immunity probably also contributed to the occurrence of cases. These factors and low vaccination coverage may also be the reason for increased susceptibility in older age-groups.⁷ However, the large proportion of cases (39%) with an unknown vaccination status together with a considerable proportion of cases (29%) vaccinated with an unspecified number of doses, does not allow for a valid assessment of mumps vaccine effectiveness. Moreover, since many cases were clinical reports with no laboratory confirmation it is possible that the number of cases has been overestimated in some countries. Indeed, a more accurate epidemiological assessment of mumps at European level depends on a complete set of surveillance data in case-based format from all participating countries.

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Table 1. Number and incidence of reported mumps cases in 2007 and 2008 and percentage laboratory-confirmed, 2008

Country	Number of cases (Crude incidence per 100,000 inhabitants)		Laboratory-confirmed cases	
	2007	2008	2008	
Bulgaria	5,299 (69.0)	5,582 (73.1)	1,155	21%
Croatia	76 (1.7)	93 (2.1)	6	6%
Cyprus	5 (0.6)	3 (0.4)	1	33%
Czech Republic	1,297 (12.6)	399 (3.8)	383	96%
Denmark	11 (0.2)	24 (0.4)	24	100%
Estonia	18 (1.3)	14 (1.0)	3	21%
Finland	6 (0.1)	5 (0.1)	5	100%
Greece	23 (0.2)	5 (0.04)	2	40%
Hungary	16 (0.2)	14 (0.1)	11	79%
Iceland	1 (0.3)	0 (0)	..	..
Ireland	142 (3.3)	1,385 (31.5)	705	51%
Italy	1,312 (2.2)	997 (1.7)	0	0%
Latvia	4 (0.2)	6 (0.3)	2	33%
Lithuania	81 (2.4)	82 (2.4)	0	0%
Luxembourg	0 (0)	23 (4.8)	13	57%
Malta	2 (0.5)	7 (1.7)	0	0%
Norway	22 (0.5)	16 (0.3)	16	100%
Poland	4,147 (10.9)	3,271 (8.6)	n.r.	..
Portugal	191 (1.8)	140 (1.3)	15	11%
Romania	5,291 (24.5)	2,302 (10.7)	n.r.	..
Slovakia	5 (0.1)	5 (0.1)	5	100%
Slovenia	19 (0.9)	32 (1.6)	13	41%
Spain	10,343 (23.3)	3,734 (8.2)	1,011	27%
Sweden	47 (0.5)	52 (0.6)	39	75%
UK	2,690 (4.4)	2,443 (4.0)	2,426	99%
Total	31,048 (9.6)	20,634 (6.3)	5,835	39%¹

n.r. = not reported

¹ The denominator used to obtain this proportion is based on the number of cases from countries reporting on laboratory-confirmed cases (n=15,061)

Table 2. Mumps cases by vaccination status, 2008

	0 doses		1 dose		≥2 doses		Unspecified number of doses		Unknown vaccination status	
Bulgaria	194	3%	1,999	36%	571	10%	2,818	50%	0	0
Croatia	29	31%	23	25%	31	33%	1	1%	9	10%
Cyprus	1	33%	1	33%	1	33%	0	0%	0	0%
Czech Republic	106	27%	4	1%	271	68%	15	4%	3	1%
Denmark	6	25%	12	50%	1	4%	0	0%	5	21%
Estonia	2	14%	9	64%	2	14%	0	0%	1	7%
Finland	5	100%	0	0%	0	0%	0	0%	0	0%
Greece	1	20%	3	60%	0	0%	1	20%	0	0%
Hungary	0	0%	8	57%	3	21%	0	0%	3	21%
Iceland	0	..	0	..	0	..	0	..	0	..
Ireland	234	17%	296	21%	335	24%	0	0%	520	38%
Italy	355	36%	0	0%	474	48%	0	0%	168	17%
Latvia	2	33%	1	17%	2	33%	0	0%	1	17%
Lithuania	26	32%	0	0%	0	0%	56	68%	0	0%
Luxembourg	10	43%	2	9%	5	22%	0	0%	6	26%
Malta	0	0%	0	0%	0	0%	0	0%	7	100%
Norway	3	19%	1	6%	0	0%	0	0%	12	75%
Poland	0	0%	0	0%	0	0%	0	0%	3,271	100%
Portugal	15	11%	44	31%	25	18%	32	23%	24	17%
Romania	0	0%	0	0%	0	0%	0	0%	2,302	100%
Slovakia	3	60%	1	20%	1	20%	0	0%	0	0%
Slovenia	15	47%	3	9%	6	19%	0	0%	8	25%
Spain	450	12%	257	7%	516	14%	718	19%	1,793	48%
Sweden	18	35%	12	23%	2	4%	10	19%	10	19%
UK	1,523	62%	630	26%	290	12%	0	0%	0	0%
Total	2,998	15%	3,306	16%	2,536	12%	3,651	18%	8,143	39%

Table 3. Number and percentage of hospitalised cases and cases with mumps-related complications, 2008

	Hospitalised cases		Cases with compliations	
Bulgaria [†]	1,520	27%	..	..
Croatia^{*,†}	..	..	..	..
Cyprus	2	67%	1	33%
Czech Republic	66	17%	44	11%
Denmark	8	33%	1	4%
Estonia	1	7%	0	0%
Finland	0	0%	0	0%
Greece [†]	2	40%	..	..
Hungary	2	14%	0	0%
Iceland	0	..	0	..
Ireland	65	5%	102	7%
Italy [†]	21	2%	..	..
Latvia	3	50%	1	17%
Lithuania^{*,†}	..	..	..	..
Luxembourg^{*,†}	..	..	..	..
Malta	0	0%	0	0%
Norway	2	13%	8	50%
Poland [†]	37	1%	..	..
Portugal [†]	4	3%	..	..
Romania^{*,†}	..	..	..	..
Slovakia	0	0%	0	0%
Slovenia	5	16%	1	3%
Spain^{*,†}	..	..	..	..
Sweden^{*,†}	..	..	..	..
UK	36	1%	19	1%
Total	1,774	12% ¹	177	4% ²

* No reports on hospitalisation status for 2008.

† No reports on complications related to mumps for 2008

¹ The denominator used to obtain this proportion is based on the number of cases from countries reporting on hospitalisation (n=14,348)

² The denominator used to obtain this proportion is based on the number of cases from countries reporting on mumps-related complications (n=4,353)