

Introduction

The following preliminary mumps surveillance report covers the year 2010 and aims to provide an overview of surveillance systems and selected epidemiological characteristics of mumps at European level.

Methods

We requested mumps data in aggregated format, consisting of the number of cases in specified age-groups. Standardized forms were used to collect information on vaccination status, laboratory confirmation, hospitalisation and deaths. Data were collected retrospectively in 2011. The following report provides an overview for the countries with epidemiological data obtained through mandatory notifications systems covering total national populations. Cases meeting the requirements for national surveillance, including clinical, laboratory-confirmed, and epidemiologically linked cases, were analyzed. Country and age-specific incidence were calculated using the population estimates from Eurostat.¹

Surveillance systems

Twenty-seven EUVAC.NET-participating countries conducted surveillance for mumps based on a mandatory notification system covering the total population.²

In Austria, mumps is not a notifiable disease while in Germany, mumps is a notifiable disease in five out of the 16 federal states. Switzerland, France and Belgium conduct sentinel surveillance systems for mumps.

Results

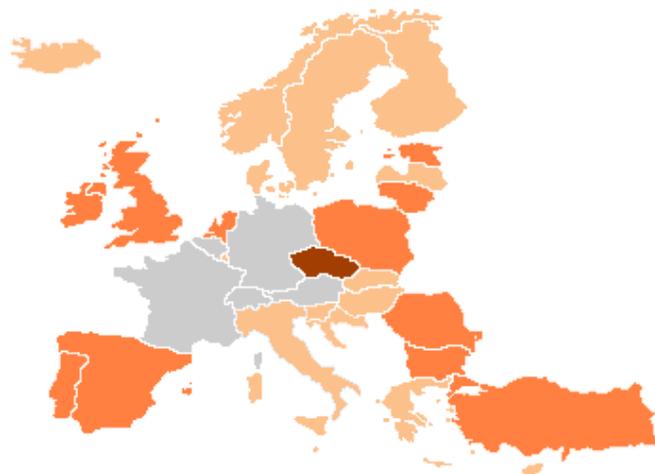
Incidence

A total of 14,568 mumps cases was reported from 27 countries that provided epidemiological data based on mandatory notification systems covering the total country population for 2010 (table 1). The incidence category of reported mumps cases per 100,000 inhabitants is shown in figure 1. The overall incidence was 3.5 per 100,000.

The highest incidences were reported from Czech Republic, Poland and UK, with 10.2, 7.2 and 7 cases per 100,000 inhabitants, respectively. Most cases (66%; n=9,603) were reported from the UK (n=4,333), Poland (n=2,754) and Spain (n=2,516), contributing to 30%, 19% and 17% respectively of all cases reported for 2010.

Figure 1. Incidence category of reported mumps cases per 100,000 inhabitants, 2010

Legend: <1 (lightest orange), 1-10 (medium orange), 10-100 (dark orange), No data / Non-mandatory notification (grey)



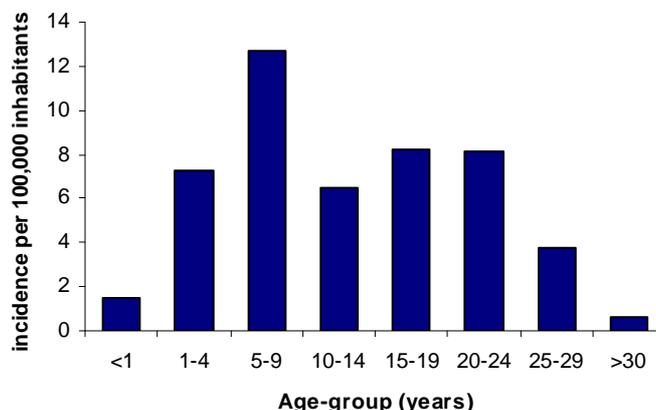
Age distribution

Data on the specified age-groups was known in 11914 cases (82%). These were distributed between age-groups with 66 (1%) aged <1 year, 1,283 (11%) aged 1-4 years, 2,712 (23%) aged 5-9 years, 1,438 (12%) aged 10-14 years, 1,962 (17%) aged 15-19 years, 2,100 (18%) aged 20-24 years, 1,027 (9%) aged 25-29 years, and 1,326 (11%) older than 30 years. The incidence was highest among children aged 5-9 years, (12.7 per 100,000).

About 40% of the cases aged 5-9 were reported from Turkey (n=1075)

Romania reported 21 cases in age categories 25-34 years and 35 cases with more than 35 years. Turkey reported 35 cases of 20-29 years of age.

Figure 2. Incidence of reported mumps cases by

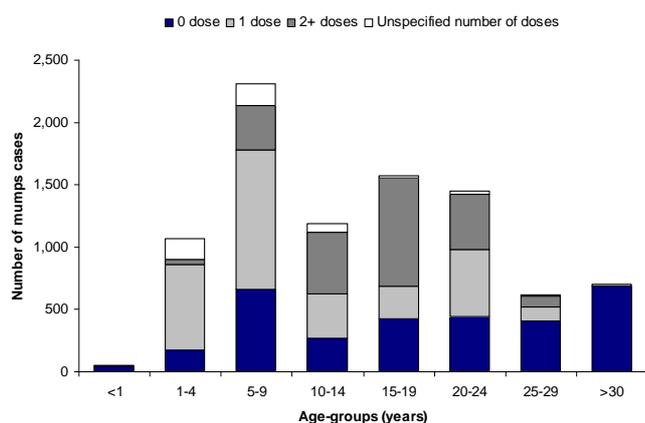


Vaccination status

The vaccination status was known in 9,014 (62%) of all reported mumps cases (Table 2). Of these, 3,130 (35%) were unvaccinated, 3,103 (34%) were vaccinated with one dose, 2,303 (26%) were vaccinated with at least two doses, and 478 (5%) were vaccinated with an unspecified number of doses.

Of those with a known vaccination status the majority of cases younger than 25 years of age were vaccinated with one or two doses (58%, 5,172/7,661), while the majority of those aged over 25 years (83%, 1,090/1,324) had never been vaccinated (Figure 2).

Figure 2. Number of mumps cases with a known vaccination status by age-group, 2010 (n=8975)



39 cases with unknown age-group not shown

Hospitalisations and complications

Data on hospitalisation status was provided from 21 countries (table 3). There were 388 reported hospitalised mumps cases in connection with mumps (4%). Most were aged 15-19 years (20%, n=77), followed by those aged 25-29 (18%, n=71).

Information on the number of cases with complications related to mumps was provided from 19 countries (table 3) where a total of 281 cases with complications were reported. Most cases with complications were aged 20-24 years (26%, n=74), followed by those aged 15-19 years (23%, n=64,) and those aged 25-29 years (24%, n=67).

Comments

In 2010, the overall number of mumps reported cases has declined, continuing a trend started in 2004. However this report is being issued earlier than previous years and for some countries the data reported are preliminary and will be subject to changes during 2011.

One country, Spain, would have been able to report data aggregated by age groups and vaccination

status and not only overall number of cases if data would have been collected later during the year, as it was during 2003-09.

In 2010, Turkey reported mumps cases for the first time and this event created a change in the picture seen at European level. Incidence became higher in the age group 5-9, while in 2009 when Turkish data was not reported the highest incidences were observed in those aged 20 to 29 years.

All countries showed a decline in the number of cases except the Czech Republic and Spain, such change was particularly evident as this led to an increase in the incidence in the Czech Republic, which however did not become as high as that reported in 2005-06.

In 2010 an outbreak of mumps occurring in Scotland was documented;³ once again the results showed that there is evidence of waning immunity in those who have received vaccination, but also that there is a cohort of susceptible who have missed the opportunity for vaccination.

The analysis of surveillance data from EUVAC.NET countries showed a similar picture. About two thirds of the cases reported had been vaccinated with one or two doses.

EUVAC.NET has collected mumps surveillance data in an aggregated format. However, collection of case-based data with information on number of vaccines, gender and methods of laboratory confirmation would allow more accurate analyses and complement information from outbreak investigations and ad hoc studies on vaccine effectiveness.

High vaccination coverage is part of the WHO strategy for the 2015 measles elimination plan. Since all European countries are using the MMR vaccine in national childhood immunisation programme, it would be ideal that the epidemiology of mumps could benefit indirectly by such effort. However, a more effective mumps vaccine or changes in vaccine policy may be needed to avert future outbreaks and achieve and sustain better control of mumps in Europe.

References

1 Eurostat. Statistical Office of the European Communities. <http://epp.eurostat.ec.europa.eu>.

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3. Walker J, Huc S, Sinka K, Tissington A, Oates K. Ongoing outbreak of mumps infection in Oban, Scotland, November 2010 to January 2011. *Euro Surveill.* 2011 Feb 24;16(8). pii: 19803.

4. Carr MJ, Moss E, Waters A, Dean J, Jin L, Coughlan S, Connell J, Hall WW, Hassan J. Molecular epidemiological evaluation of the recent resurgence in mumps virus infections in Ireland. *J Clin Microbiol.* 2010 Sep;48(9):3288-94. Epub 2010 Jul 21.

Reporter

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Table 1. Number, incidence, and proportion of laboratory-confirmed mumps cases, 2010

	Number of cases (incidence per 100,000)				Laboratory confirmed cases (%)	
	2009		2010		2010	
Bulgaria	1,111	14.6	317	4.2	26	8%
Croatia	57	1.3	40	0.9	0	0%
Cyprus	5	0.6	2	0.2	2	100%
Czech	357	3.4	1,068	10.2	1,010	95%
Denmark	17	0.3	32	0.6	31	97%
Estonia	11	0.8	13	1	0	0%
Finland	2	0	4	0.1	4	100%
Greece	21	0.2	2	0.02	0	0%
Hungary	5	0	0	0	0	-
Iceland	4	1.3	2	0.6	2	100%
Ireland	3,631	81.6	307	6.9	116	38%
Italy	1,103	1.7	530	0.9	0	0%
Latvia	1	0	3	0.1	0	0%
Lithuania	74	2.2	87	2.6	0	0%
Luxemburg	25	5.1	0	0	0	-
Malta	0	0	2	0.5	2	100%
the Netherlands	73	0.4	562	3.4	423	75%
Norway	12	0.3	12	0.2	12	100%
Poland	2,954	7.7	2,754	7.2	3	0%
Portugal	154	1.4	140	1.3	11	8%
Romania	784	3.6	286	1.3	0	0%
Slovakia	5	0.1	2	0.04	1	50%
Slovenia	27	1.3	5	0.2	2	40%
Spain	2,174	4.7	2,516	5.5	0	0%
Sweden	32	0.3	24	0.3	16	67%
Turkey	2,355	2.8	1,525	2.1	0	0%
UK	8,663	14.2	4,333	7	4333	100%
Total	21,048	6.3	14,568	3.5	5,994	41%

Table 2. Mumps cases by country and by vaccination status, 2010

	0 doses		1 dose		≥ 2 doses		Unspecified number of doses		Unknown vaccination status	
	n	%	n	%	n	%	n	%	n	%
Bulgaria	28	9%	118	37%	34	11%	0	0%	137	43%
Croatia	6	15%	0	0%	0	0%	15	38%	19	47%
Cyprus	0	0%	2	100%	0	0%	0	0%	0	0%
Czech Republic	192	18%	12	1%	854	80%	10	1%	0	0%
Denmark	21	66%	5	16%	2	6%	0	0%	4	13%
Estonia	3	23%	6	46%	0	0%	0	0%	4	31%
Finland	4	100%	0	0%	0	0%	0	0%	0	0%
Greece	0	0%	1	50%	1	50%	0	0%	0	0%
Hungary	0	-	0	-	0	-	0	-	0	-
Iceland	2	100%	0	0%	0	0%	0	0%	0	0%
Ireland	44	14%	46	15%	53	17%	0	0%	164	53%
Italy	135	25%	0	0%	0	0%	322	61%	73	14%
Latvia	0	0%	1	33%	1	33%	0	0%	1	33%
Lithuania	6	7%	12	14%	23	26%	0	0%	46	53%
Luxemburg	0	-	0	-	0	-	0	-	0	-
Malta	0	0%	0	0%	0	0%	0	0%	2	100%
the Netherlands	77	14%	54	10%	369	66%	35	6%	27	5%
Norway	1	8%	0	0%	0	0%	1	8%	10	83%
Poland	844	31%	1302	47%	125	5%	0	0%	483	18%
Portugal	14	10%	34	24%	46	33%	32	23%	14	10%
Romania	0	0%	0	0%	0	0%	0	0%	286	100%
Slovakia	0	0%	1	50%	0	0%	0	0%	1	50%
Slovenia	0	0%	1	20%	1	20%	0	0%	3	60%
Spain	0	0%	0	0%	0	0%	0	0%	2516	100%
Sweden	7	29%	1	4%	0	0%	5	21%	11	46%
Turkey	532	35%	650	43%	125	8%	58	4%	160	10%
UK	1214	28%	857	20%	669	15%	0	0%	1593	37%
Total	3,130	21%	3,103	21%	2,303	16%	478	3%	5,554	38%

Table 3. Number and percentage of hospitalised cases and cases with mumps-related complications, 2010

	Hospitalised		Cases with complications	
	Number	%	Number	%
Bulgaria	75	24%	28	9%
Croatia	n/a	-	n/a	-
Cyprus	1	50%	0	0%
Czech Republic	150	14%	126	12%
Denmark	0	0%	12	38%
Estonia	1	8%	1	8%
Finland	0	0%	0	0%
Greece	0	0%	0	0%
Hungary	0	-	0	-
Iceland	0	0%	0	0%
Ireland*	9	6%	19	15%
Italy	14	3%	0	0%
Latvia	1	33%	0	0%
Lithuania	11	13%	n/a	-
Luxemburg	0	-	0	-
Malta	1	50%	0	0%
the Netherlands	8	1%	51	9%
Norway	1	8%	0	0%
Poland	32	1%	n/a	-
Portugal	5	4%	n/a	-
Romania	n/a	-	n/a	-
Slovakia	0	0%	0	0%
Slovenia	1	20%	0	0%
Spain	n/a	-	n/a	-
Sweden	n/a	-	n/a	-
Turkey	n/a	-	n/a	-
UK	78	2%	44	1%
Total †	388	4%	281	4%

n/a = not available

*Ireland, Hospitalisation status was reported for 153 cases; complication status was reported for 122 cases

† The denominator is from the countries reporting on hospitalised cases, 21 countries (n=9,870) and from the countries reporting on cases with complications, 19 countries, (n=7,196)

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