

Continuous measles circulation among unvaccinated populations in the WHO European Region, 2006-2008

In November 2006, an outbreak of measles started in the canton of Lucerne, Switzerland, where the vaccination coverage is 78%. The source of the virus could not be established. However, genomic sequencing revealed complete sequence identity with a D5 virus causing a large outbreak in Japan which started around the same time period, suggesting a direct or indirect epidemiological link.

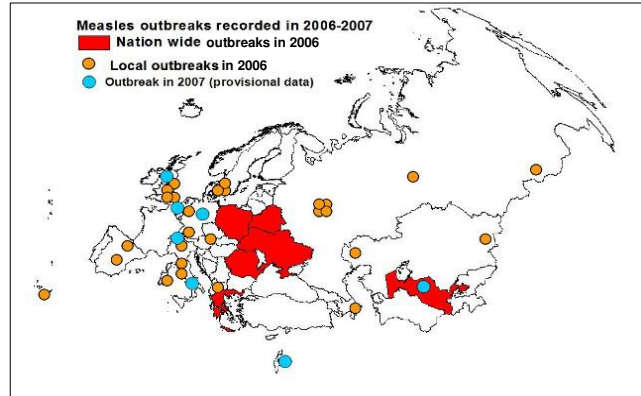
From November 2006 to 14 April 2008, the spread of the outbreak across Switzerland has totalled 2,250 cases, predominantly among school-age population (5-14 years), with 98% of the cases unvaccinated or only partly vaccinated, mainly due to parental opposition to vaccination because of anthroposophical and other personal beliefs. Eight percent (8%) of the cases required hospitalisation due to complications.

Since its start, the outbreak has spread to neighboring European countries and to the United States, primarily affecting populations not vaccinated because of personal beliefs but also with significant spread to the general population with low vaccination coverage.

In 2007, a measles virus strain, indistinguishable from the D5-strain from Switzerland, was associated with outbreaks in Germany in Lower Bavaria (90 cases recorded among unvaccinated children) as well as with sporadic cases in other German states. During the same year, sporadic cases, epidemiologically and virological linked to the outbreak in Switzerland were detected in Denmark (1 case) and Austria (5 cases with identical sequence).

In 2008, new introductions of the D5 virus from Switzerland occurred in Germany and caused an outbreak in Baden-Württemberg (153 cases as of 15 April 2008). Similarly, two concurrent outbreaks, epidemiologically linked to the outbreak in Switzerland, and primarily affecting unvaccinated children, were recorded in Arizona and California, United States of America. A small cluster of cases caused by the virus strain from Switzerland was reported in Reims, France, where epidemiological investigations are ongoing to establish the source of the outbreak.

A large measles outbreak is currently ongoing mainly among unvaccinated pupils of an anthroposophic school in Salzburg region, Austria. Isolated cases have occurred in other Austrian counties. Altogether about 200 cases have been reported thus far. Students resident in Bavaria attending the affected school in Salzburg also contracted measles, causing spread of the outbreak to two Bavarian counties. Further spread has been documented in the neighbouring state of Baden-Württemberg, Germany, where 3 epidemiologically linked cases have been reported so far. On 10 April 2008, a small cluster of four cases, epidemiologically linked to the anthroposophic



school in Salzburg, was notified to WHO by the National IHR Focal Point in Norway under the provisions of the current Regulations.

Risk management measures adopted by national and local public health authorities in Switzerland, Austria, Germany, and Norway include immunization of unvaccinated children in affected schools, day care centres and other institutions, distribution of information leaflets in affected institutions, press releases recommending verification of immunization status and closure of immunization gaps, immunization of unvaccinated adults and children in the affected communities, exclusion from schools for unvaccinated siblings and contacts of cases and, in some instances, temporary closure of affected schools. Additionally, a proof of immunity must be presented by children attending affected institutions as prerequisite for attendance.

In addition, to minimize the risk of transmission and further international spread, including during the upcoming European Football Championships, to be hosted by Austria and Switzerland in June 2008, the WHO Regional Office for Europe is supporting the recommendation jointly issued by national public health authorities concerned for any person visiting these countries to check their vaccination status against measles and, if needed, to obtain vaccination against measles prior to travel.

The WHO Regional Office for Europe is working closely with national public health authorities concerned, the European Centre for Disease Prevention and Control (ECDC), and EUVAC.NET, to coordinate epidemiological and laboratory activities.

To eliminate measles-related morbidity and mortality and to achieve the European Regional Goal to eliminate Measles and Rubella by 2010, a key strategy of WHO is to achieve high routine coverage (>95%) with two doses of a measles containing vaccine. To this effect, the WHO Regional Office for Europe is coordinating the European Immunization Week, 20-27 April 2008, in order to increase public awareness on vaccination, particularly against measles.

Measles and rubella campaign news: Armenia, Turkmenistan and Uzbekistan conducted MR catch-up campaign in 2007. MR catch-up campaign in Ukraine is scheduled between 26 May – 9 June, 2008. Detailed information on MR campaigns in the region will be included in the next month newsletter.

Table 1: Classification of suspected measles and rubella cases, Jan-Mar, 2008

Country	Measles								Rubella							
	Total suspected	Total measles (%)	Classification				Monthly Reporting		Total suspected	Total Rubella (%)	Classification				Monthly Reporting	
			Lab confirmed	Epi-Link	Clinical ¹	Discarded	% Completeness	% Timeliness			Lab confirmed	Epi-Link	Clinical ¹	Discarded	% Completeness	% Timeliness
Albania	0	0	0	0	0	0	100%	100%	0	0	0	0	0	0	100%	50%
Andorra	0	0	0	0	0	0	100%	100%	0	0	0	0	0	0	75%	75%
Armenia	0	0	0	0	0	0	100%	66%	1	1 (100%)	0	0	1	0	75%	50%
Austria	0	0	0	0	0	0	66%	33%	-	-	-	-	-	-	0%	0%
Azerbaijan	0	0	0	0	0	0	100%	100%	0	0	0	0	0	0	100%	100%
Belarus	0	0	0	0	0	0	66%	66%	1	1 (100%)	1	0	0	0	50%	50%
Belgium	60	59 (98.0)	22	33	4	1	100%	33%	-	-	-	-	-	-	0%	0%
Bosnia and Herzegovina	No Report	-	-	-	-	-	0%	0%	-	-	-	-	-	-	0%	0%
Bulgaria	0	0	0	0	0	0	100%	33%	-	-	-	-	-	-	0%	0%
Croatia	0	0	0	0	0	0	100%	66%	-	-	-	-	-	-	0%	0%
Cyprus	0	0	0	0	0	0	100%	66%	0	0	0	0	0	0	75%	75%
Czech Republic ³	0	0	0	0	0	0	100%	66%	-	-	-	-	-	-	0%	0%
Denmark ³	6	6 (100.0)	6	0	0	0	100%	33%	9	9 (100%)	0	0	9	0	25%	0%
Estonia	0	0	0	0	0	0	100%	66%	0	0	0	0	0	0	25%	25%
Finland	0	0	0	0	0	0	100%	66%	-	-	-	-	-	-	0%	0%
France	21	21 (100.0)	16	1	4	0	66%	33%	-	-	-	-	-	-	0%	0%
Georgia	20	20 (100.0)	0	0	20	0	100%	100%	24	24 (100%)	1	0	23	0	75%	75%
Germany ³	211	211 (100.0)	104	83	24	0	100%	33%	-	-	-	-	-	-	0%	0%
Greece	0	0	0	0	0	0	100%	33%	-	-	-	-	-	-	0%	0%
Hungary	0	0	0	0	0	0	100%	33%	-	-	-	-	-	-	0%	0%
Iceland	0	0	0	0	0	0	100%	33%	-	-	-	-	-	-	0%	0%
Ireland	15	15 (100.0)	0	0	15	0	66%	33%	11	11 (100%)	1	0	10	0	100%	100%
Israel	No Report	-	-	-	-	-	0%	0%	-	-	-	-	-	-	0%	0%
Italy	0	0	0	0	0	0	66%	33%	-	-	-	-	-	-	0%	0%
Kazakhstan	5	5 (100.0)	5	0	0	0	100%	0%	0	0	0	0	0	0	75%	0%
Kyrgyzstan	6	1 (17.0)	1	0	0	5	100%	66%	-	-	-	-	-	-	0%	0%
Latvia	0	0	0	0	0	0	100%	33%	3	3 (100%)	2	0	1	0	75%	75%
Lithuania	0	0	0	0	0	0	100%	66%	0	0	0	0	0	0	100%	100%
Luxembourg	0	0	0	0	0	0	100%	33%	-	-	-	-	-	-	0%	0%
Malta	0	0	0	0	0	0	100%	66%	-	-	-	-	-	-	0%	0%
Moldova	0	0	0	0	0	0	100%	66%	-	-	-	-	-	-	0%	0%
Monaco	No Report	-	-	-	-	-	0%	0%	-	-	-	-	-	-	0%	0%
Montenegro	0	0	0	0	0	0	100%	66%	0	0	0	0	0	0	75%	50%
Netherlands ³	2	2 (100.0)	2	0	0	0	33%	0%	-	-	-	-	-	-	0%	0%
Norway	0	0	0	0	0	0	100%	66%	-	-	-	-	-	-	0%	0%
Poland	44	10 (23.0)	1	0	9	34	100%	0%	-	-	-	-	-	-	0%	0%
Portugal	0	0	0	0	0	0	66%	0%	-	-	-	-	-	-	0%	0%
Romania	57	5 (9.0)	4	0	1	51	100%	0%	0	0	1	0	0	0	0%	0%
Russian Federation	5	5 (100.0)	5	0	0	0	100%	100%	-	-	-	-	-	-	0%	0%
San Marino	No Report	-	-	-	-	-	0%	0%	-	-	-	-	-	-	0%	0%
Serbia	0	0	0	0	0	0	100%	33%	-	-	-	-	-	-	0%	0%
Slovakia	2	1 (50.0)	1	0	0	1	100%	66%	1	1 (100%)	0	0	1	0	75%	0%
Slovenia	0	0	0	0	0	0	100%	66%	-	-	-	-	-	-	0%	0%
Spain	54	54 (100.0)	44	5	5	0	66%	33%	-	-	-	-	-	-	0%	0%
Sweden ³	12	12 (100.0)	10	1	1	0	100%	33%	-	-	-	-	-	-	0%	0%
Switzerland ³	428	428 (100.0)	206	35	187	0	33%	0%	-	-	-	-	-	-	0%	0%
Tajikistan	0	0	0	0	0	0	100%	33%	16	16 (100%)	0	0	16	0	75%	25%
The former Yugoslav Republic of Macedonia	2	2 (100.0)	0	0	2	0	100%	100%	1	1 (100%)	0	0	1	0	50%	25%
Turkey	No Report	-	-	-	-	-	0%	0%	-	-	-	-	-	-	0%	0%
Turkmenistan	0	0	0	0	0	0	100%	66%	-	-	-	-	-	-	0%	0%
Ukraine	20	20 (100.0)	1	0	19	0	100%	100%	-	-	-	-	-	-	25%	25%
United Kingdom	211	211 (100.0)	209	2	0	0	100%	33%	-	-	-	-	-	-	0%	0%
Uzbekistan	2	2 (100.0)	1	0	1	0	100%	100%	6	6 (100%)	4	0	2	0	75%	50%
Total/Averages	1183	1090 (92.0)	638	160	292	92	83%	46%	73	74 (101.0)	10	0	64	0	25%	17%

Data source: Monthly aggregate and case-based data reported by Member States to WHO/Europe and/or EUVAC.NET.

¹ Cases with missing classification are classified as "Clinical"

² Import related lab confirmed measles cases included in total cases: No case

³ Imported lab confirmed measles cases included in total cases: Denmark=2; Germany =20; Netherlands=2; Spain=1; Sweden=5; Switzerland=4; UK=1

Table 2: Measles and rubella laboratory test results, Jan-Mar, 2008

Country	Specimen* (Serum, Oral Fluid, Swab, Urine and other)									Reporting	
	Collected	Tested for measles	Positive for measles (%)	Measles Equivocal	Negative for measles	Tested for rubella	Positive for rubella (%)	Rubella Equivocal	Negative for rubella	% Completeness	% Timeliness
Albania	5	5	2 (40.0)	0	3	0	0	0	0	100.0	67.0
Andorra	No Lab										
Armenia	12	12	1 (8.0)	0	10	12	0 (0.0)	3	8	100.0	33.0
Austria	0	303	4 (1.0)	5	294	1350	1 (0.0)	0	1349	100.0	100.0
Azerbaijan	8	4	0 (0.0)	0	4	5	0 (0.0)	0	5	100.0	33.0
Belarus	43	39	0 (0.0)	0	39	41	1 (2.0)	0	40	100.0	100.0
Belgium	96	95	34 (36.0)	4	47	26	2 (8.0)	0	20	100.0	100.0
Bosnia and Herzegovina	No Report										
Bulgaria	14	14	0 (0.0)	0	14	14	0 (0.0)	0	14	100.0	67.0
Croatia	0	0	0	0	0	0	0	0	0	67.0	67.0
Cyprus	0	0	0	0	0	0	0	0	0	100.0	100.0
Czech Republic	9	6	2 (33.0)	1	3	8	0 (0.0)	0	8	100.0	100.0
Denmark	No Report										
Estonia	258	72	1 (1.0)	0	70	237	4 (2.0)	0	232	100.0	100.0
Finland	134	22	0 (0.0)	0	22	112	0 (0.0)	0	112	67.0	67.0
France	No Report										
Georgia	No Report										
Germany	156	155	67 (43.0)	3	85	1	1 (100.0)	0	0	100.0	33.0
Greece	No Report										
Hungary	441	20	0 (0.0)	0	20	29	0 (0.0)	0	29	100.0	100.0
Iceland	No Report									0.0	0.0
Ireland	435	58	0 (0.0)	0	58	386	0 (0.0)	0	386	100.0	100.0
Israel	485	194	86 (44.0)	0	108	124	29 (23.0)	0	95	100.0	100.0
Italy	No Report										
Kazakhstan	162	74	7 (9.0)	1	66	156	80 (51.0)	8	68	100.0	67.0
Kyrgyzstan	31	31	3 (10.0)	1	27	31	0 (0.0)	2	29	100.0	33.0
Latvia	62	46	0 (0.0)	0	46	60	0 (0.0)	0	60	100.0	100.0
Lithuania	1	2	0 (0.0)	0	1	1	0 (0.0)	0	1	100.0	100.0
Luxembourg	46	19	0 (0.0)	0	19	27	6 (22.0)	5	16	100.0	100.0
Malta	No Report										
Moldova	14	14	0 (0.0)	0	14	14	0 (0.0)	0	14	100.0	100.0
Monaco	No Lab										
Montenegro	No Lab										
Netherlands	17	9	5 (56.0)	0	4	9	0 (0.0)	0	9	67.0	0.0
Norway	30	23	0 (0.0)	0	23	12	2 (17.0)	0	10	100.0	100.0
Poland	27	27	1 (4.0)	0	26	27	11 (41.0)	1	15	100.0	67.0
Portugal	18	1	0 (0.0)	0	1	0	0	0	0	100.0	100.0
Romania	104	88	7 (8.0)	1	80	97	2 (2.0)	1	94	67.0	67.0
Russian Federation	806	778	10 (1.0)	4	764	490	100 (20.0)	6	384	100.0	100.0
San Marino	No Lab										
Serbia	6	0	0	0	0	6	0 (0.0)	0	6	33.0	33.0
Slovakia	8	8	0 (0.0)	0	8	0	0	0	0	100.0	67.0
Slovenia	114	23	0 (0.0)	0	23	91	19 (21.0)	0	72	100.0	100.0
Spain	75	107	37 (35.0)	2	61	52	16 (31.0)	0	36	67.0	33.0
Sweden	No Report										
Switzerland	No Lab										
Tajikistan	1	1	0 (0.0)	0	1	1	0 (0.0)	0	1	67.0	33.0
The former Yugoslav Republic of Macedonia	No Report										
Turkey	No Report										
Turkmenistan	35	35	0 (0.0)	0	35	35	0 (0.0)	0	35	100.0	100.0
Ukraine	174	162	4 (2.0)	1	157	174	12 (7.0)	0	162	100.0	100.0
United Kingdom	1953	1354	365 (27.0)	39	950	330	7 (2.0)	19	304	100.0	33.0
Uzbekistan	22	17	1 (6.0)	0	16	22	17 (77.0)	1	4	100.0	100.0
Total / Average	5802	3818	637 (17%)	62	3099	3980	310 (8%)	46	3618	63.0	50.0

*Laboratories may have received more than 1 clinical sample or may have conducted more than 1 test for a given case reported in Table 1

Data source: Aggregated monthly lab data provided by laboratories of the regional measles and rubella lab network.

ALL Issues of monthly MR surveillance newsletter can be accessed at:
http://www.euro.who.int/vaccine/publications/20080401_1

Website: <http://www.euro.who.int/vaccine>
 CISID: <http://data.euro.who.int/cisid>; email: measles@euro.who.int