

Measles and rubella elimination country profile

Serbia

Measles elimination status



Source: European Regional Verification Commission for Measles and Rubella Elimination (RVC) meeting report: www.euro.who.int/6thRVC

National plan of action



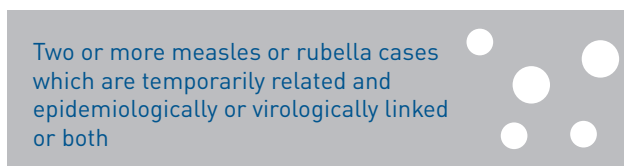
Source: Measles and rubella elimination Annual Status Update report, 2016

Measles and rubella immunization schedule, 2016

	Vaccine	Schedule	Year of introduction	
MCV1	MMR	12 months	MCV2	1994
MCV2	MMR	7 years	RCV	1994
Measles vaccination in school				No

Source: Immunization schedule, WHO, Data and Statistics, Immunization Monitoring and Surveillance (http://www.who.int/immunization/monitoring_surveillance/data/en/)
MMR = measles-mumps-rubella-containing vaccine; MCV1 = first dose measles-containing vaccine; MCV2 = second dose measles-containing vaccine; RCV = rubella-containing vaccine

Definition used for an outbreak



Source: Measles and rubella elimination Annual Status Update report, 2016

Rubella elimination status



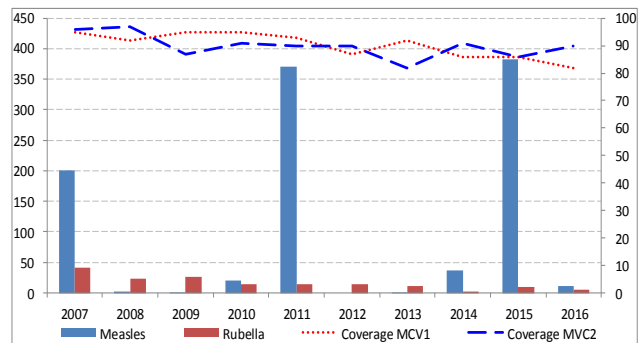
Source: European Regional Verification Commission for Measles and Rubella Elimination (RVC) meeting report: www.euro.who.int/6thRVC

Demographic information, 2016

Total population	8 812 705
< 1 year old	89 651
< 5 years old	452 016

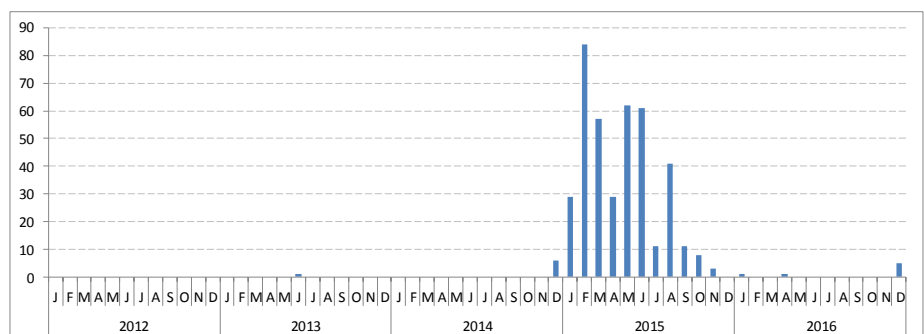
Source: World Population Prospects: The 2015 Revision, New York, United Nations

Measles and rubella cases and immunization coverage, 2007–2016



Source: Disease incidence and immunization coverage, WHO, Data and Statistics, Immunization Monitoring and Surveillance (http://www.who.int/immunization/monitoring_surveillance/data/en/)
MCV1 = first dose of measles-containing vaccine
MCV2 = second dose of measles-containing vaccine

Confirmed measles cases by month of onset, 2012–2016



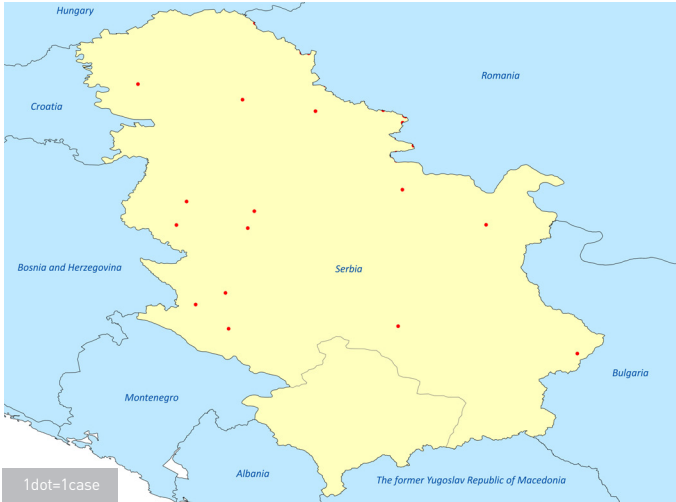
Source: CISID2 2016



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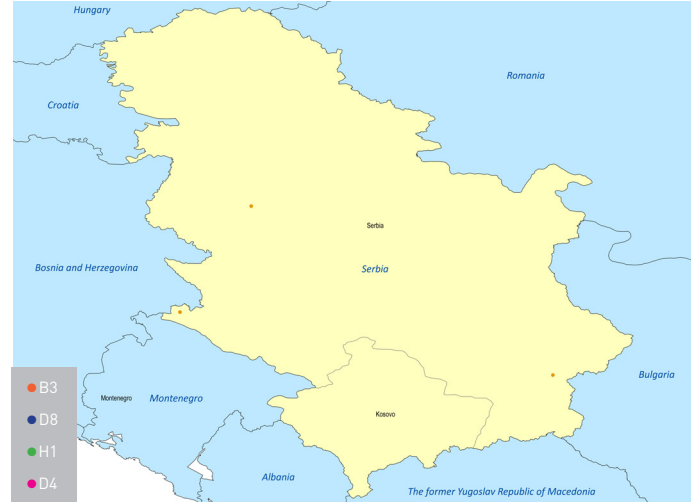
Serbia

Measles cases by first subnational level, 2016



Source: Measles and rubella elimination Annual Status Update report, 2016

Measles genotypes by first subnational level, 2016

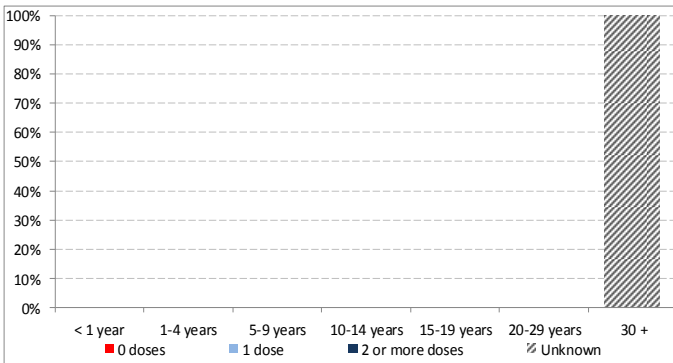


Source: MeaNS 2016

Note: The dots in the maps are placed randomly within the administrative regions.

Map disclaimer: The boundaries and names shown and the designations used on the maps do not imply the expression of any opinion whatsoever on the part of the World Health Organization concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted and dashed lines on maps represent approximate border lines for which there may not yet be full agreement.

Measles cases by first subnational level, 2016



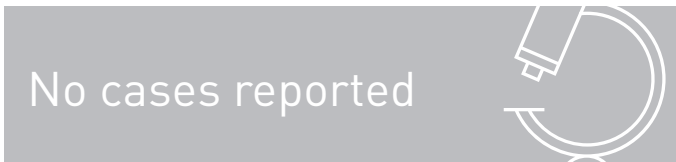
Source: Measles and rubella elimination Annual Status Update report, 2016

Sources of infection, 2016

	Measles	Rubella
Imported	0	0
Import-related	0	0
Unknown/ Not reported	0	5
Endemic	15	0

Source: Measles and rubella elimination Annual Status Update report, 2016

Information on CRS, 2016



Source: Measles and rubella elimination Annual Status Update report, 2016
CRS = congenital rubella syndrome

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Measles incidence, epidemiologic and virologic characteristics, 2012-2016

	Suspected measles cases	Confirmed measles cases				Discarded as non-measles	Measles incidence	Genotypes detected
		Laboratory	Epi-linked	Clinically	Total			
2012	ND	1	0	0	1	ND	0	D8
2013	30	1	0	0	1	29	0	ND
2014	81	35	2	0	37	44	5.1	D8,D9
2015	543	308	75	0	383	160	53.7	D8
2016	73	14	1	0	15	58	2.1	B3

Source: Measles and rubella elimination Annual Status Update report, 2012-2016
Incidence calculated per 1 million population
ND = Data not available; NA= Not applicable

Measles surveillance and laboratory performance indicators, 2012-2016

	Discarded non-measles rate	% 1st sub-national unit with > 2 discarded cases	% cases with adequate laboratory investigation	% origin of infection known	# specimen tested for measles	% positive for measles	Rate of viral detection	% WHO and proficient labs
2012	0.9	ND	ND	100%	ND	ND	ND	ND
2013	0.4	4%	100%	ND	ND	ND	ND	ND
2014	0.6	8%	100%	73%	79	44.3%	ND	ND
2015	2.2	44%	67.1%	100%	459	67.1%	50%	100%
2016	0.7	12%	100%	100%	73	19.2%	100%	100%

Source: ASU 2012-2016, MeaNS 2012-2016 and laboratory accreditation results 2012-2016
ND = Data not available; NA= Not applicable
A proficient laboratory is WHO accredited and/or has an established quality assurance programme with oversight by a WHO accredited laboratory

Rubella incidence, epidemiologic and virologic characteristics, 2012-2016

	Suspected rubella cases	Confirmed measles cases				Discarded as non-rubella	Rubella incidence	Genotypes detected
		Laboratory	Epi-linked	Clinically	Total			
2012	ND	0	0	14	14	ND	1.8	ND
2013	ND	ND	ND	ND	ND	ND	1.4	ND
2014	2	2	0	0	2	0	0.2	ND
2015	ND	2	0	8	10	ND	1.4	ND
2016	ND	2	0	3	5	ND	0.7	ND

Source: Measles and rubella elimination Annual Status Update report, 2012-2016
Incidence calculated per 1 million population
ND = Data not available; NA= Not applicable

Rubella surveillance and laboratory performance indicators, 2012-2016

	Discarded non-rubella rate	% 1st sub-national unit with > 2 discarded cases	% cases with adequate laboratory investigation	% origin of infection known	# specimen tested for rubella	% positive for rubella	Rate of viral detection	% WHO and proficient labs
2012	ND	ND	ND	ND	ND	ND	ND	ND
2013	ND	ND	ND	ND	ND	ND	ND	ND
2014	ND	ND	ND	ND	ND	ND	ND	ND
2015	ND	ND	ND	ND	ND	ND	ND	ND
2016	ND	ND	ND	ND	60	3.3%	ND	100%

Source: ASU 2012-2016, RubeNS 2012-2016 and laboratory accreditation results 2012-2016
ND = Data not available; NA= Not applicable
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RVC comments, based on 2016 reporting

The Regional Verification Commission for Measles and Rubella Elimination (RVC) commends Serbia on the expansion of genotyping of confirmed cases and reiterates the request to the National Verification Committee (NVC) to include line-lists of discarded suspected cases with results of laboratory investigations for first-level administrative districts. The RVC urges improvement of the quality of measles and rubella surveillance including the rate of viral detection for rubella. With reference to WHO resolutions and guidelines and requirements for immunization coverage of >95% with both doses of MRCV at national and subnational levels within the routine immunization programme, the RVC urges the national health authorities to consider activities to increase routine immunization coverage and to consider conducting SIAs to boost population immunity and prevent outbreaks.

Source: Regional Verification Commission for Measles and Rubella Elimination (RVC) meeting report (www.euro.who.int/6thRVC)

Surveillance performance indicators and targets

- Rate of discarded cases: at least 2 discarded measles or rubella cases per 100 000 population
- % cases with adequate laboratory investigation: ≥ 80%
- % origin of infection known: ≥ 80%
- Rate of viral detection: ≥ 80%