



ANALYSIS OF DETERMINANTS FOR LOW MMR VACCINATION COVERAGE IN EUROPE, 2010

VENICE II Consortium

October 2010- October 2011

Developed by Work Package No. 4

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Abbreviations

ECDC	European Centre for Disease Prevention and Control
EEA	European Economic Area
EMA	European Medicines Agency
EU	European Union
MSs	Member States
VENICE	Vaccine European New Integrated Collaboration Effort
CINECA	Consortium of University, Bologna, Italy
WHO	World Health Organization
IHR	International Health Regulations

Acknowledgments

The VENICE Project would like to take this opportunity to thank all the gatekeepers, contact points and members of the work packages for their contributions to this report.

The time generously provided by each person in answering the questionnaire and subsequent follow up queries is greatly appreciated. We also would like to thank Dr. Filia Antonietta from Istituto Superiore di Sanita, Rome, Italy for her support in questionnaire development.

ISO 3166-1 Country Codes

AT	Austria
BE	Belgium
BG	Bulgaria
CY	Cyprus
CZ	Czech Republic
DK	Denmark
EE	Estonia
FI	Finland
FR	France
DE	Germany
GR	Greece
HU	Hungary
IS	Iceland
IE	Ireland
IT	Italy
LV	Latvia
LT	Lithuania
LU	Luxembourg
MT	Malta
NL	The Netherlands
NO	Norway
PL	Poland
PT	Portugal
RO	Romania
SK	Slovakia
SI	Slovenia
ES	Spain
SE	Sweden
GB	Great Britain

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Summary

In 2005 the WHO European Regional Office for Europe issued the WHO European Region strategic plan for elimination of measles and rubella and prevention of congenital rubella infection for 2005-2010 with the target to achieve and sustain very high coverage ($\geq 95\%$) with two doses of measles and at least one dose of rubella vaccine. In 2009 new global measles targets were set up by WHO for 2015 and proposed as milestones towards global eradication of measles. These include achievement of the Global Immunization Vision and Strategy's goal to increase vaccination coverage and exceed 90% coverage with the first dose of measles-containing vaccine nationally and exceed 80% vaccination coverage in every district or equivalent administrative unit.

Substantial progress has been made within the World Health Organization European Region in recent years towards these targets. However several large outbreaks of measles, rubella and mumps were reported in the European Region with some of them among hard to reach population. This indicates that there are pockets of susceptible populations (subgroups) in these countries, where MMR vaccine coverage (VC) may be low.

The web based survey was conducted by VENICE project on determinants for low MMR vaccination coverage in October/November 2010. The information was collected by administering a standardised questionnaire to VENICE gatekeepers appointed by each participating country (27 EU and Norway and Iceland).

The main objective of this survey was to assess the variability of MMR vaccine coverage among different population sub-groups or among different regions at national level and to investigate the determinants for such variability.

All 25 survey responding countries monitor MMR vaccination coverage at national level. Twenty four countries (RO did not respond) monitor VC for the first dose of MMR with age range between 12 months and 6 years. Nineteen of these countries monitor the first dose of MMR (MMR 1) VC before or at age of 24 months (n=19). Twenty countries monitor VC for the second dose of MMR. Three countries (SI, IE,LU) did not monitor the second dose of MMR (MMR2) at the time VENICE survey was conducted. The age at which MMR2 is monitored varies greatly between countries (range 24 months to 17 years).

All countries (n=24) that monitor MMR1 reported national VC. Overall VC was high among countries and varied from 82% to 100% between them. Fifteen countries (15/24; 63%) reported higher than 95% VC for MMR1 and achieved WHO targets.

Of 16 countries that measure MMR2 VC using administrative method six countries reported VC higher than 95%. In the remaining nine countries VC varied from 79% to 94% (one country did not provide VC data). The reported VC estimated by survey methods in nine countries was lower than measured by administrative method. VC varied from 45% to 90% for different age groups across these eight countries.

Among the 14 countries that provided sub national data some of these countries reported regional variation in MMR1 uptake (e.g. BG, NL, DE,PT,S E,IT,ES,BE). In some of these countries differences between regions are substantial involving several regions in the country (e.g. IT), however in others the difference is minimal.

Thirteen of the fourteen countries reporting sub national data were able to report sub national data for MMR2 (IE was unable to provide this data). Among these 13 countries, differences in sub national data were seen in almost all countries (except SK).

Two countries (FR,GR) were able to provide VC data for ethnic groups (55% among those <30 years old in FR; 82% for dose 1 and 45% for dose 2 at 6 years of age in 2008). Only one country (NL) described a religious subgroup (Orthodox reformed) as a minority group in the population. However VC data are not available for this particular group as there is no religious sub group identifier in the immunisation system. Four countries described the presence of Anthroposophic groups in their countries (DE,IE,NL,UK). However VC data were not known for this group in these countries.

Of 25 responding countries 13 have recommendations to vaccinate Health Care workers (HCWs) (SI recommends vaccination of female HCWs specifically). Only one country- FR- reported VC for HCWs (estimated at 50% by survey method).

Of 23 countries nine reported low VC among certain age groups in their countries (five of them see the problem among teenagers and young adults; four among younger children).

The results from this study demonstrate that all countries monitor and report high national VC for MMR. Comparison of VC of 1st and 2nd doses indicates that VC for 2nd dose is lower than the VC for 1st dose. It also shows that there are sub national differences in VC, particularly related to the 2nd MMR dose. Only few countries have MMR VC data on specific sub populations. Although MMR vaccine is recommended for HCWs VC uptake is not routinely monitored among this group (except FR).

Background

In 2005 the WHO European Regional Office for Europe approved the Resolution EUR/RC55/R, issued the WHO European Region strategic plan for elimination of measles and rubella and prevention of congenital rubella infection for 2005-2010 and set up targets for measles and rubella vaccination. This document set up objectives (for 2010: to eliminate endemic measles; to eliminate endemic rubella; and to prevent CRI (<1 case of CRS per 100 000 live births). One of the key strategies of this document was to achieve and sustain very high coverage ($\geq 95\%$) with two doses of measles and at least one dose of rubella vaccine through high-quality routine immunization services.

Strategies need to be developed to improve vaccine coverage to $\geq 95\%$, especially among “hard-to-reach” populations, which include cultural or ethnic minority groups, nomadic groups, populations experiencing civil unrest/political instability, populations geographically isolated and populations refusing vaccination owing to religious or philosophical beliefs.

Substantial progress has been made within the World Health Organization European Region in recent years towards these targets. However several large outbreaks of measles, rubella and mumps were reported in the European Region as well as in the countries of European Union (EU) during the last years (Austria, Bulgaria, France, Germany, Italy, Ireland, Spain, Switzerland and the United Kingdom).

Although measles can be avoided through simple and inexpensive vaccines, children in affluent countries continue to have a substantial risk of infection. Nine of the ten countries in the WHO European Region with the lowest average measles immunisation rates, from 2000 through 2007, are members of the European Union. Some countries have experienced periods of decline in coverage over the past decade for a variety of reasons. Decline in immunisation rates has been attributed to a combination of vaccine skepticism born of ideological positions and, ironically, the success of immunisation programmes in earlier generations. The reasons for non-vaccination among vulnerable groups are multiple and challenging, and require specific strategies if they are to be successful. Some hard-to-reach vulnerable groups in every country have difficulty accessing to immunisation services compared to age matched peers from non-vulnerable groups. For some, parental choice not to vaccinate puts children at risk of these diseases. While for others, lack of education or understanding

about vaccination is a factor contributing to low coverage rates. Further, the challenges to immunization are fed by disturbing and dangerously misleading anti-vaccination advocacy campaigns.

Objective

The main objective of this survey was to assess the variability of MMR vaccine coverage among different population sub-groups or among different regions at national level and to investigate the determinants for such variability. The survey will also provide information on MS's ability to detect at a national level those areas or sub-groups with low MMR coverage.

Methodology

The survey was conducted using the VENICE platform supported by CINECA on determinants for low MMR vaccination coverage.

The study was undertaken in October/November 2010. Non-responders were given additional opportunities to respond after this date. The information was collected by administering a standardised questionnaire to VENICE gatekeepers appointed by each participating country. Completed questionnaires were collated into one database and data analysed in Excel for the final report of the study.

As part of the study and participants have provided links to published reports (peer review journals and national publications). Some of these reports include the findings of studies undertaken to identify knowledge attitudes and practices regarding MMR vaccine and access o immunisation services in the MSs.

The questionnaire specifically looked at the determinants on vaccination coverage across and within countries, regions and population sub-groups. The information was sought on:

- Regional differences in MMR uptake in each country; reasons for low vaccine uptake;
- Variation among population sub-groups (religious,anthroposophic, migrant, ethnic groups) and reasons for low vaccine uptake;
- Possible barriers to obtaining vaccination such as social, cultural, language, cost;
- Accessibility to vaccination programmes;
- Knowledge about vaccination programmes and possible barriers (language, lack of permanent address);
- Adverse media coverage regarding MMR;
- Activities undertaken to address differences.

The deliverables for this activity are the database and a final report describing the results of the survey. Health Protection Surveillance Centre of Ireland led this activity.

Results

Response rate: (n=25; 25/29; 86%)

AT,EE,BE,BG,CY,CZ,FR,DE,GR,HU,IS,IE,LT,LU,MT,NL,PL,PT, IT,SK,SI,RO,ES,SE,GB.

Did not participate: DK,FI,LV,NO (n=4; 14%).

MMR VACCINATION COVERAGE AT NATIONAL, SUBNATIONAL LEVEL

NATIONAL

All 25 countries that responded to the survey monitor MMR vaccination coverage (VC) at the national level and all countries reported MMR national vaccination coverage. The age at which vaccination coverage is monitored differs between countries.

Eighteen of 25 countries use administrative methods to monitor MMR VC (AT,EE,BG,FR,DE,HU,IS,IE,LT,IT,MT,NL,PL,PT,RO,SK,ES,SE,GB); the remaining six (24%) countries do not use administrative methods (BE,CY,CZ,GR,LU,SI). Ten countries use survey methods to monitor MMR VC (BE,CY,CZ,GR,LU,IT,SI,FR,DE,IS), four of which (DE,FR,IT,IS) also use administrative methods. Six countries (BE,CY,CZ,GR,LU,SI) use only survey methods. Details of method used by country and VC are presented in tables 1 and 2.

Table 1. National MMR vaccination coverage (VC) *measured using administrative methods* by age at which VC is monitored, dose and year in EU/EEA countries. Analysis of determinants for low MMR vaccination coverage in Europe, November 2010. (n=18)

Countries	Dose 1			Dose 2			Catch up dose		
	Age	VC	Year	Age	VC	Year	Age	VC	Year
AT	36 months	100	2009	36 months (3 years)	89	2009	12 years	84	2009
BG	13 months	96.1	2009	12 years	92.8	2009	-	-	-
EE	24 months	95	2010	14 years	95	2010	-	-	-
FR	24 months	89	2008	24 months (2 years)	NK	2008	-	-	-
DE	4-6 years	96	2008	4-6 years	89	2008	-	-	-
HU	15 months	99.8	2009	11 years	99.3	2009	-	-	-
IS	18 months	92	2009	12 years	92	2009	-	-	-
IE	24 months	90	2009	4-5 years	NK	2009	-	-	-
LT	15-16,5 months	97	2009	6-7 years	95	2009	12 years	98	2009
MT	15 months	82	2009	8 years	85	2009	-	-	-
NL	24 months	96	2010	10 years	93	2010	-	-	-
IT	24 months	89.9	2009	NK	-	-	NK	-	-
PL	36 months	98	2009	11 years	96	2009	-	-	-
PT	15 months	95	2009	5-6 years	94	2009	-	-	-
SK	14th-17th month	98.9	2009	10 years	99.3	2009	-	-	-
ES	12-15months	97	2009	3-6 years	90	2009	-	-	-
SE	24-35 months	96.5	2009	12-13 years	94.9	2009	-	-	-
GB	24months	86	2009	5 years	79	2010	-	-	-

NK – Not known; RO-administrative methods used, but no data provided.

Table 2. National MMR vaccination coverage(VC) *estimated using survey methods by* age at which VC is monitored, dose and year in EU/EEA countries. Analysis of determinants for low MMR vaccination coverage in Europe, November 2010. (n=9)

Countries	Dose 1						Dose 2					
	Age	VC	Year	Age 2 years	VC	Year	Age/ years	VC	Year	Age 2 /years	VC	Year
BE	12 months	94.5	2009	-	-	-	10-13	83	2009	-	-	-
CY	17-24 months	86.9	2009	6	97	2009	6	90	2009	12	82	2009
FR	6 years	94	2005	11	96	2004	6	45	2005	11	74	2004
DE	24months	89	2006	17	94	2006	2	59	2006	17	77	2006
GR	6 years	99	2006	14	92	2006	6	77	2006	14	80	2006
IS	24 months	92	2009	-	-	-	13	92	2009	-	-	-
LU	30 months	96	2005	-	-	-	6	NK*	-	-	-	-
IT	24 months	86.5	2008	16	78.1	2008	16	53.9	2008	-	-	-
SI	18 months	94	2009	-	-	-	-	NK**	-	-	-	-

NK – Not known; RO-no data provided.

*The coverage for the 2nd MMR dose was not monitored at the time of the survey. However, since the last survey, recommendations have changed and the national schedule now it recommends MMR vaccination at 12 months of age (1st dose) and at 15-23 months of age (2nd dose). This will make it possible to monitor the coverage for 1st and 2nd doses with our current, validated survey tool.

**SI- MMR2 was not monitored at the time when VENICE survey was conducted, but in 2010 new system started and data will be available later this year (2011).

CZ-The vaccination coverage of all mandatory vaccinations of eligible children is still between 97 and 98 % since several years ago.

Of 19 countries that use administrative method for MMR VC assessment, 16 countries use the number of people vaccinated to calculate the numerator (table 3).

Table 3. National MMR vaccination coverage numerator assessment by methods used in EU/EEA countries. Analysis of determinants for low MMR vaccination coverage in Europe, November 2010.(n=18)

Methods	Countries	Total
Aggregated number of vaccines administered	LT	1
Aggregated number of vaccines distributed by industry		0
Aggregated number of vaccines distributed by national purchaser	AT,LT	2
Aggregated collection of number of vaccines sales (private pharmacies)		0
Payment/reimbursement claims	DE	1
Number of people vaccinated	AT,BG,ES,FR,HU,IE,IS,LT,MT,PL,PT,SE,SK,GB,IT,EE	16
Other, specify	DE-school entry examination; NL-based on vaccination registry, in which vaccination is registered at individual level	2

RO-no data provided.

SUB NATIONAL (REGIONAL)

MMR vaccination coverage data are available at regional level in 21 countries (AT,EE,BE,GR,BG, DE,FR,HU,NL, IS,IE,LT,PL,PT,RO,SK,ES,SI,SE,GB,IT). Four countries (CY,CZ,LU,MT) reported that regional data are not available. Methods used to monitor MMR VC at regional level are presented in table 4.

Sub national data were provided by 14 countries (13 countries used administrative methods and two used survey methods; Italy provided VC measured by both methods) presented in Appendix 1 and 2.

Table 4. Method(s) used to monitor vaccination coverage at regional level in EU/EEA countries. Analysis of determinants for low MMR vaccination coverage in Europe, November 2010.(n=21)

	Countries	Total
Only administrative method (s) used in whole country (all regions)	AT,EE,BG,FR,HU,IE,LT,PL,PT,SK,ES,SE,GB	13
Only survey method in whole country (all regions)	BE,GR,SI	3
Both methods are used in whole country (all regions)	IS	1
Both methods are used, but specific method used in each region may differ	DE,NL,RO,IT	4

REGIONAL DIFFERENCES BY POPULATION SUBGROUP

Six countries reported regional differences in MMR VC among following subgroups (i.e. population groups determined either by social, ethnic, philosophical, religious beliefs or customs) (Table 5).

Table 5. Regional differences in MMR vaccination coverage among population groups determined by social, ethnic, philosophical, religious subgroups in EU/EEA countries. Analysis of determinants for low MMR vaccination coverage in Europe, November 2010. (n=25)

	Countries	Total
No differences	CY,HU,LT,MT,SK,SE	6
Not known	AT,BE,BG,CZ,FR,DE,IS,LU,PL,PT,RO,ES,EE	13
There is differences, specify:	GR,IE,NL,GB,SI,IT	6
Religious subgroup	GR,NL,GB,SI	4
Ethnic subgroup	IE,NL,GB,IT	4
Anthroposophic subgroup	IE, NL,GB	3
Economic migrant subgroup	GR,IE,NL,GB,SI	5

Reasons for low MMR vaccination coverage are specified in the table 6.

Table 6. Reasons for low vaccine coverage among sub groups in EU/EEA countries. Analysis of determinants for low MMR vaccination coverage in Europe, November 2010. (n=6)

	Countries	Total
Internet (anti vaccination websites)	IE,SI,GB	3
Fear of side effects	IE,SI,GB	3
Low risk of disease	GR,IE,GB	3
Better with natural immunity than with vaccine induced	IE,GB	2
Belief that the child should receive vaccine at an older age	IE	1
Distrust health services	SI,GB	2
Distrust government policies	IE,GB	2
Perception that there are too many	IE	1

vaccinations for routine vaccination		
Fear of thiomersal containing vaccines	GR,IE,GB	3
Perception of mildness disease	IE, NL,GB	3
Other	NL-religious objections; GB-access to primary health care. IT-Minimal contact with health care services	3

Thirteen countries (IT,BE,BG,CY,FR,DE,GR,IE,LU,NL,PL,SI,GB) undertook surveys/studies to evaluate determinants of low VC for vaccination in general including MMR vaccination. The list of references provided in appendix 3.

ADVERSE MEDIA COVERAGE REGARDING MMR

Seven of 24 countries reported that MMR VC has been affected by negative media coverage (TV networks, radio broadcast and press releases). Thirteen countries reported that adverse media coverage had not impacted on MMR VC. Details presented in the table 7.

Table 7. Adverse media coverage regarding MMR vaccination in EU/EEA countries. Analysis of determinants for low MMR vaccination coverage in Europe, November 2010. (n=24)

	Countries	Total
Not affected	AT,BE,CY,DE,HU,PT,SK,SI,ES,SE ,FR,IT,EE	13
Not known	BG, GR,LU,NL	4
Yes, it was affected, specify:	CZ,IS,IE,LT,MT,PL,GB:	7
Publications in peer review journals	IE,GB	2
Human interest stories	IE,GB,PL	3
Well known personalities speaking out against MMR vaccine	IE,PL,GB	3
Non- specific anti- vaccine stories	CZ,IS,IE,LT,MT,PL	6

RO-no response

Five countries reported that MMR vaccine coverage was adversely affected by the Wakefield article (that incorrectly suggested a link between MMR vaccine and autism (the table 8).Thirteen countries reported that no impact on MMR vaccination was linked to this paper.

Table 8. Adverse coverage on MMR vaccination coverage following scientific article published by Wakefield at all. Analysis of determinants for low MMR vaccination coverage in Europe, November 2010. (n=23)

	Countries	Total
Not affected	SK,SI,ES,PL,PT,AT,BE,MT,CY,CZ,FR,DE,EE	13
Not known	GR,HU,BG,LU,NL,RO,IT	7
Yes, specify:	IS,GB,IE,LT,SE	5
Both: parents and health care providers	IS,GB,IE	3
Parents	LT,SE	2
Health care providers		0

HEALTH CARE WORKERS (HCWs)

Vaccination recommendation

In 13 countries MMR vaccination is recommended for all or for some HCWs(Table 9).

In 12 countries (AT,BE,FR,DE,GR,ES,IE,LT,MT,GB,IT,EE) MMR vaccination is recommended to both genders (males and females), but vaccination is not compulsory. In SI MMR vaccination is compulsory and recommended only for women HCWs.

Table 9. Recommendations or needs. Analysis of determinants for low MMR vaccination coverage in Europe, November 2010. (n=24)

	Countries	Total
Yes, for all	BE,FR,GR,ES,IE,LT,MT,SI,GB,IT	10
No recommendation	BG,CY,CZ,HU,IS,LU,NL,PL,PT,SE,SK	11
Yes, for some	AT,DE,EE	3
	AT-doctors, dentists, nurses, midwives, students, trainees, ambulance staff;	3
	DE- doctors, dentists, nurses, midwives, students, trainees, ambulance staff, occupational therapists, laboratory staff; all health staff born after 1970;	
	EE- no data for some provided.	

RO-not responded

Reported outbreaks

In the past five years, outbreaks involving HCW of measles, mumps, and rubella have been reported in following 12 countries: IT,BG,FR,DE,GR,IS,IE,NL,PT,SI,ES,GB (links and/or specified disease to the reports are provided in appendix 4). The remaining 12 countries (AT,BE,CY,CZ,HU,LT,LU,MT,PL,SK,SE,EE (RO-not responded) did not report any outbreaks during this time period.

Vaccination coverage among HCWs and studies undertaken to identify barriers for vaccination

Only one country- FR reported VC among HCWs. The remaining 24 (AT,BE,CY,CZ,DE,HU,IS,IE,LT,LU,MT,NL,PL,PT,RO,SK,SI,ES,SE,GB,IT,EE,BG,GR) (including both those who have and do not have recommendations to vaccinate HCWs) are not able to estimate on MMR VC among HCWs

In FR vaccine uptake was estimated using survey methodology in a random sample of private and public hospitals in 2009; VC was 50 % in HCW (doctors, nurses, nurses assistants and midwives) without a history of measles.

Studies undertaken to identify the barriers to vaccination among HCWs and activities to increase VC among them are presented in tables 10 and 11.

Table 10. Studies undertaken and links to published reports for barriers to vaccination among HCWs. Analysis of determinants for low MMR vaccination coverage in Europe, November 2010. (n=24)

Studies undertaken to identify the barriers to vaccination among HCWs	Countries	If studies undertaken links to published reports
No, studies undertaken	AT,BE,BG,CY,CZ,HU, IS,IE,LT,LU,MT,NL,PT,RO, SK,SI,ES,SE,IT (n=19)	
Not known	FR,DE,GR (n=3)	
Yes, at the national level	GB (n=1)	L. Pezzoli, K. Noakes, P. Gates, F. Begum, R. G. Pebody. Can we know the immunization status of health care workers? Results of a feasibility study in hospital trusts, England, 2008. Epidemiol. Infect. (2010) 138 45-52
Yes, but only in some regions	PL (n=1)	

Table 11. Activities undertaken to increase vaccination coverage among HCWs. Analysis of determinants for low MMR vaccination coverage in Europe, November 2010.(n=25)

Activities undertaken to increase vaccination coverage among HCWs	Countries	If activities undertaken were they successful
No activities undertaken	AT,BE,CZ,HU,IE,LU,MT,NL,RO,SK,SE,PL,IT (n=13)	-
Not known	CY,LT,PT,SI, DE,GR (n=6)	-
Yes, at the national level	BG,IS,EE (n=3)	Not known
Yes, but only in some regions	ES, FR (n=2)	FR- Not known
Yes both at national and regional level	GB (n=1)	-

SPECIFIC AGE GROUPS

The low MMR vaccination coverage has been seen as the problem among certain age groups in nine countries, particularly among adolescents and young adults (Table 12). No specific age groups were identified as having particularly low MMR uptake in the following 14 countries: NL,PL,PT,SK,SI,SE,BE,BG,CY,CZ,HU,IS,LT,EE.

Table 12. Low vaccination coverage and studies undertaken to evaluate it among specific age groups. Analysis of determinants for low MMR vaccination coverage in Europe, November 2010.(n=22)

Countries	Age group for low MMR coverage	Studies undertaken	Please specify studies undertaken and links to published reports
AT	15-30 years	No	
IT	Adolescents and young adults	Yes, at the regional level (all regions)	

FR	Mainly adolescents, and young adults	Yes, at the national level	http://www.invs.sante.fr/beh/2008/51_52/beh_51_52_2008.pdf , http://www.invs.sante.fr/beh/2007/06/beh_06_2007.pdf
DE	Adolescents, young adults	Yes both at national and regional level	
GR	Adolescents and young adults	Yes, at the national level	National data on adolescents available if requested
IE	Mainly children, adolescents and young adults	Yes	Immunisation uptake data over years
MT	15 months	Yes, at the national level	No studies done
ES	3-6 years	No	
GB	Under 18 years, predominately under 10 years	Yes both at national and regional level	

LU-not known; RO-no response.

Activities implemented to improve vaccination coverage in these groups were undertaken in six countries and details presented in a table 13.

Table 13. Activities implemented to improve vaccination coverage among specific age groups. Analysis of determinants for low MMR vaccination coverage in Europe, November 2010.(n=6)

Countries	Activities implemented to improve vaccination coverage	Were these activities particularly successful?
AT	Catch up vaccination for young parents and teachers as well as catch up vaccination for women after delivery;	Not known
FR	Sensitization- European Immunization weeks;	Not known
DE	Catch-up campaigns, check of vaccination records, information campaigns; http://www.rki.de/clin_178/nn_199596/DE/Content/Infekt/Impfen/Pr_aevention/Maserneliminierung,templated=raw,property=publicationFile.pdf/Maserneliminierung.pdf	Yes
GB	2008 - MMR catch-up campaign for 13m to 18yrs; http://www.dh.gov.GB/prod_consum_dh/groups/dh_digitalassets/documents/digitalasset/dh_086817.pdf ; See page 13 of COVER report at: http://www.hpa.org.GB/hpr/archives/2009/hpr3809.pdf .	Yes
IE	MMR catch-up programme for university students and school age children (in last 3 years of secondary school); MMR catch-up in schools (final 3 years) undertaken in spring summer 2009- 71% uptake reported, uptake among university students is unknown.	Yes
IT	Strategies to improve vaccination coverage among these groups have been included in the updated national measles and congenital rubella elimination plan 2011.	Not known
MT	Under reporting by general practitioners; awareness campaigns.	Yes

VARIATION AMONG POPULATION SUBGROUPS

Religious sub-groups

One country -NL- responded to this part of questionnaire. All responses related with religious subgroups in NL are provided in table 14.

Table 14. Description of religious subgroup and vaccine uptake among them in NL. Analysis of determinants for low MMR vaccination coverage in Europe, November 2010.(n=1)

Country	NL
<i>General description of religious subgroup and vaccine uptake among them</i>	
Are there communities in your country that refrain from vaccination on religious grounds?	Yes
If yes, please identify that group(s) by name:	Orthodox reformed
How big is this community (ies)? (Please provide approximate estimation if it is available):	Estimation of this population is unknown.
Are these communities located in specific regions or sub-regions of the country?	Yes
Do children of these communities have separate (special) schools/crèches (kindergartens) from other children in the country?	Yes
Do these communities have mass gatherings that can facilitate the spread of measles, mumps, and rubella? If yes, specify type of mass gatherings that occur.	Yes; church visit, gatherings, political party (SGP)
Has your country had outbreaks among this population of measles, mumps, and rubella for recent 5 years? If yes, please specify disease and provide links to published reports: Mumps (2007/2008: http://www.eurosurveillance.org/ViewArticle.aspx?ArticleId=18901), Rubella (2004/2005: http://www.ncbi.nlm.nih.gov/pubmed/16794286 , http://www.ncbi.nlm.nih.gov/pubmed/16766825 , http://www.ncbi.nlm.nih.gov/pubmed/16702632 , http://www.ncbi.nlm.nih.gov/pubmed/15940923)	
Is there an estimate of MMR vaccine coverage among this group in your country?	No
If you do not have coverage data in this group, please specify why you are unable to estimate vaccine coverage in this group	There is no religious sub group identifier in the immunisation system
<i>Possible barriers to obtain MMR vaccination</i>	
Have any studies been undertaken to identify the barriers to vaccination in these communities?	Yes, but only in some regions
What barriers to vaccination for these communities have been identified? (either perceived or existing, data from studies or experience in dealing with the communities):	Other known barriers: religion
<i>Accessibility to MMR vaccination services</i>	
Are MMR vaccination services easily accessible (i.e. no financial deterrent, convenient (time and place), population know how to enrol and obtain services easily) to these communities?	Yes
Is MMR vaccination for preschool and school children from these communities funded from the state budget?	Yes
Are members of these communities entitled to register with a family doctor in the primary health care service?	Yes
If yes (or some of them), is registration for this population similar to that of the rest of the population?	Yes

Are individuals from these communities entitled to have (receive) vaccination service in the primary health care service?	Yes
If yes, is this the same as vaccination service entitlements for the rest of the population?	Yes
Are members of these communities entitled to seek only emergency medical service?	No
Do you believe that there is an element of poor communication between health professionals and these communities in your country?	No
Do these communities lack legal documentation which makes it difficult to access to health insurance or health services?	No
Knowledge about MMR vaccination programme	
In comparison to the average population, what is the average living standard of this community?	Not known
In comparison to the average population, what is the average level of education of this group?	Not known
Do individuals from these communities lack access to health information (either materials or modes of obtaining information)?	Not known
Can children from these communities be easily contacted and made aware that they should attend for vaccination?	Not known
Activities undertaken to address differences in MMR vaccine	
Does your country have a special strategy (plans) to reach this population on a regular basis for MMR vaccinations?	No
Does your country have special information materials routinely available for this community (e.g. vaccination leaflets in their language or special advertisements)?	No
Has your country had a communication campaign specifically targeted at these communities?	Yes
Are there special clinical staff (and/or peer educators) trained to work with this community?	No
Has your country organised special vaccination clinics in recent (4-5 years) years for these communities?	No
Have any incentives been used to increase vaccination coverage in this community?	No

Comments for general description of religious sub group:

BE: See outbreak description in : Lernout T, Kissling E, Hutse V, De Schrijver K, Top G. An outbreak of measles in orthodox Jewish communities in Antwerp, Belgium, 2007-2008: different reasons for accumulation of susceptibles. Euro Surveill. 2009;14(2):pii=19087. Available online: <http://www.eurosurveillance.org/ViewArticle.aspx?ArticleId=19087> Accepted for publication : Asnong et al. Lessons learned from a measles outbreak in Antwerp, Belgium 2007-2008. PIDJ 2010.

GB: We do not have religious groups that refuse vaccination but there are some groups that are known to have lower coverage than the general population i.e. Orthodox Jewish communities.

Comments for possible barriers to obtain MMR vaccination:

BE: There are no fundamental or religious objections against vaccination in this community. Possible barriers: misinformation about vaccination, language barriers, family size, a preference for family doctors practicing alternative medicine, frequent travel, and move & accessibility (see next question).

GB: Ashmore J, Addiman S, Cordery R, Maguire H. Measles in North East and North Central London, England: a situation report. Euro Surveill. 2007;12(38):pii=3271. Available online: <http://www.eurosurveillance.org/ViewArticle.aspx?ArticleId=3271>. This paper states that experience suggests that larger families are often not vaccinated and that families have little understanding of the need to vaccinate their children with two doses of MMR.

Comments accessibility to MMR vaccination services:

BE: A large number of orthodox Jewish children, especially adolescents, attend private religious schools. They are not supported by a school health centers and thus not entitled to free and systematic follow-up of vaccinations. Their parents have to rely on paid visits to a GP or pediatrician.²⁷ in anthroposophic schools the coverage will rather be low, with > 50% of parents refusing having their children vaccinated against MMR as well as other vaccines.

GB: Very large family size with many pre-school children can make accessing primary care services difficult.

Comments knowledge about MMR vaccination programme:

BE: Lack of information or misperception of possible side effects or interaction with other diseases were important reasons why children did not get a first dose of MMR vaccine during their childhood (ref Lernout et al.).

GB: A targeted, proactive approach to intervention has been taken by local front-line health care workers and the Health Protection Unit. This has included extending community-based immunisation clinics; engaging local community-specific media; and liaising with primary care teams and local hospitals, as well as the Learning Trust school nurses and health visiting teams. A national press release supported these efforts, and locally, efforts are being made to maintain this impetus. Overall, these interventions have received a positive response within the affected communities.

Comments activities undertaken to address differences in MMR vaccine:

BE: A round-table conference in Antwerp in 2009 on the problem of private schools did not result in any concrete actions so far. Proactive attitude has been adopted by the school health centres for this. Measles vaccination became mandatory for all health professionals in Flanders in 2009. Vaccination registration in Vaccinnet became more easily accessible to all vaccinators in Flanders.

GB: Targeted, proactive approach to intervention has been taken by local front-line health care workers and the Health Protection Unit. This has included extending community-based immunisation clinics; engaging local community-specific media; and liaising with primary care teams and local hospitals, as well as the Learning Trust school nurses and health visiting teams. A national press release supported these efforts, and locally, efforts are being made to maintain this impetus. Overall, these interventions have received a positive response within the affected communities.

Ethnic groups

Five countries reported (GR,IE,NL,FR,GB ,IT) that they had highly mobile, transient or nomadic communities in their countries (table 15).

Table 15. Description of ethnic subgroups and vaccine uptake among them. Analysis of determinants for low MMR vaccination coverage in Europe, November 2010.(n=5)

	Subgroups	Countries
<i>General description of ethnic subgroups and vaccine uptake among them</i>		
Are there communities in your country that are highly mobile, transient or with a nomadic life style?	Yes	GR,IE,NL,FR, GB ,IT
If yes, please identify that group(s) by name	Roma	FR,GR,NL,IE
	Irish travellers	IE,GB
	Roma/Sinti	IT
How big is this community (ies)?	Not known	FR,GR,NL, GB
	Roma ~ 4000 (not known exactly) (< 0.1 population), Irish travellers 22,000 (~0.6% population)	IE
	Approx. 130,000	IT
In your country do these communities refrain from vaccination?	Not known	FR,NL
	Yes	GR, GB,IT
	Some of them	IE
Does this community move frequently within the country?	Some of them	FR,GR,IE, NL,IT
	Yes	GB

Does this community move frequently outside the country?	Not known	GR
	Some of them	FR,IE,NL,IT
	Yes	GB
Does this population usually settle in one place?	Some of them	FR,GR,IE,NL,GB,IT
Are these communities located in specific regions or sub-regions of the country?	Not known	NL
	Yes	GR
	Some of them	IE
	No	FR,GB, IT
Are children of these communities attending school regularly?	Some of them	FR,GR,IE,GB,IT
	Not known	NL
Do these communities have mass gatherings that can facilitate the spread of measles, mumps, and rubella?	Not known	FR,GR,NL
	Yes	FR,IE,GB,IT
If yes, specify type of mass gatherings that occur	Irish travellers: funerals, weddings, fairs; for Roma--not sure if they gather in same way	IE
	Measles : Horse Fairs, Weddings, Funerals, birthday and christening parties	GB
	Funerals, weddings, others	IT
Has your country had outbreaks among this population of measles, mumps, and rubella for recent 5 years?	Yes	GR,IE,GB,IT
	No	FR,NL
If yes, please specify disease and provide links to published reports:	2010 measles, www.eurosurveillance.org/images/dynamic/EE/V15N30/art19629.pdf	GR
	http://www.eurosurveillance.org/ViewArticle.aspx?ArticleId=19500	IE
	measles : Cohuet S, Morgan O, BGBasa A, Heathcock R, White J, Brown K, Ramsay M, Fraser G. A measles outbreak among the Irish travellers ethnic group after a funeral. England, March to June 2007. Epidemiol Infect 2009; 137 : 1759-1765. doi:10.1017/S0950268809002714	GB
	measles http://www.eurosurveillance.org/ViewArticle.aspx?ArticleId=3062	IT
Can you estimate MMR vaccine coverage among this group?	Yes	FR,GR
	No	IE,NL,GB
	Not known	IT
If yes, please specify which method was used to estimate vaccine uptake for this group(s) vaccination coverage (%), year of data collection and age at which vaccination	Measured using survey methods: Dose 1 at 6 years of age – 82% in 2006; Dose 2 at 6 years of age – 45% in	GR

coverage is measured:	2006;	
	MMR : 55 % in < 30 years old (survey) http://www.medecinsdumonde.org/Presse/Dossiers-de-presse/France/Parias-les-Roms-en-France	FR
If you are unable to provide coverage data for this group, please specify the reasons why you are unable to do so?	This population is included in the vaccine uptake estimate of the general population	IE,GB
	There is no ethnic sub group identifier in the immunisation system	IE,GB,NL
Possible barriers to obtain MMR vaccination		
Have any studies been undertaken to identify the barriers to vaccination in these communities?	Yes, at the regional level (all regions)	IE
	Yes, but only in some regions	GB
	Not known	GR,NL
	No	IT
What barriers to vaccination for these communities have been identified? (either perceived or existing, data from studies or experience in dealing with the communities):	Social/cultural	GR,IE,GB,IT
	Language barriers	IE,NL
	Educational (literacy) issues	IE,NL,GB
Accessibility to MMR vaccination services		
Are MMR vaccination services easily accessible (i.e. no financial deterrent, convenient (time and place), population know how to enrol and obtain services easily) to these communities?	Yes, for some of them	GR,IE, GB,IT
	Not known	NL
Is MMR vaccination for preschool and school children from these communities funded from the state budget?	Yes	GR,IE,NL,GB,IT
Are members of these communities entitled to register with a family doctor in the primary health care service?	Yes	GR,IE*,NL,GB
	Yes for some	IT
Is registration for this population similar to that of the rest of the population?	Yes	GR,NL,IT
	Not known	IE
	No	GB
Are individuals from these communities entitled to have (receive) vaccination service in the primary health care service?	Yes	GR,IE,NL,GB,IT
If yes, is this the same as vaccination service entitlements for the rest of the population?	Yes	GR,IE,NL,GB,IT
Are members of these communities entitled to seek only emergency medical service?	No	GR,IE,NL,GB,IT
Do you believe that there is an element of poor communication between health professionals and these communities in your country?	Not known	GR,NL
	Yes	IE,GB,IT
Do these communities lack legal documentation which makes it difficult to access to health insurance or health services?	Not known	GR,NL
	Yes	IE,GB
	Some of them	IT

Do these communities lack of permanent address?	Yes, for some of them	GR,IE,NL,GB,IT
Knowledge about MMR vaccination programme		
In comparison to the average population, what is the average living standard of this community?	Lower living standard	GR,IE,GB,IT
	Not known	NL
In comparison to the average population, what is the average level of education of this group?	Lower	GR,IE,GB,IT
	Not known	NL
Do individuals from these communities lack access to health information (either materials or modes of obtaining information)?	Yes, some of them	GR,IE,GB
	Not known	NL
	Yes	IT
Can children from these communities be easily contacted and made aware that they should attend for vaccination?	No, not easily	GR,IT
	Not known	NL
	Sometime	IE,GB
If yes, how are they contacted?	By letter, phone, personal home visit (from GP or immunisation service)	IE,GB
If no for any of the above, for which of the following reasons is contact difficult?	Lack permanent address in your country	GR,IE,IT
	Lack phones	GR,IE,IT
	Refuse contact with immunisation services even if reached	IE,IT
Activities undertaken to address differences in MMR vaccine		
Does your country have a special strategy (plans) to reach this population on a regular basis for MMR vaccinations?	Yes	GR,IE,GB
	No	NL,IT
Does your country have special information materials routinely available for this community (e.g. vaccination leaflets in their language or special advertisements)?	Not known	GR
	Yes	IE,GB
	No	NL,IT
Has your country had a communication campaign specifically targeted at these communities?	Yes	GB
	No	NL,IE,GR,IT
Are there special clinical staff (and/or peer educators) trained to work with this community?	Yes	GR,IE,GB,IT
	No	NL
Has your country organised special vaccination clinics in recent (4-5 years) years for these communities?	Yes, nationally	GR
	Yes, regionally	IE,GB,IT
	Not known	NL
If yes, please specify which of the following:	Special school clinics	IE
	Special university clinics	
	Special community clinics	IE,IT
	Work places	IE
	Special community teams going out to other sites (e.g. other group gatherings)	IE,IT
	If yes, specify other sites:	

	vaccination clinics held at the nomadic camps	IT
	Special teams(Hellenic centre of Disease Control visit their reservations)	GR
	Going to halting sites	IE
If yes, were these efforts successful?	Not known	GR,GB
	Yes- improved uptake in traveller population	IE
	Yes	IT
Have any incentives been used to increase vaccination coverage in this community?	No	GR,IE,NL,GB
	Not known	IT

Comments on general description of ethnic subgroups:

IE: most responses to the questions above are related to Irish traveller groups. For Roma population, we have difficulty getting information on their movement. Some are very settled and access immunisation services routinely, others are very much on the margins and we don't have much information about them.

Comments possible barriers to obtain MMR vaccination:

IE: for Irish travellers - literacy barriers for some. For Roma - literacy and cultural/social as well as language barriers--and also they may not register for immunisation services (although entitled to it) or not understand how service works. Other publications <http://www.fags.org/periodicals/201005/2027195931.html> recent study of traveller health---not specifically immunisation : <http://pavee.ie/ourgeels/>and an older paper from 1997 <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1060476/> .

Another barrier for Roma is insecurity in relation to legal status in country, resultant mobility and lack of permanency in country. Roma entering from some countries not entitled to full residency rights.

Comments accessibility to MMR vaccination services:

IE: Do these communities lack legal documentation which makes it difficult to access to health insurance or health services? Response - both Irish Traveller and Roma entitled to same health services as rest of community. Some Irish travellers who are permanent residents In Ireland would have medical cards due to low income entitling them to free services (all). Many Roma if coming from new EU countries (2007) would not have automatic entitlement to health services usually (other than children would have access to free immunisation always). For this subgroup they would have to pay for other health care sometimes (but never for immunisation)--- the issue may be that very transient, non permanent, non-legal Roma do not register with a GP for immunisation services, or having registered with a specific GP then move to another area. Due to administrative/payment issues, GPs in the areas to which they have moved may be unwilling to accept these children for vaccination as they would not be paid. In some areas specific efforts are being made to ensure these children are not lost to the system and vaccination. GB: In affected areas, local Health Protection Units have been working with local National Health Service providers to offer vaccination with MMR to Irish Traveller communities. Traveller education liaison teams from local authorities have been contacted to notify schools with pupils from the Irish Traveller community. Traveller organisations and societies have been contacted to help raise awareness of the importance of MMR vaccination. Information about this outbreak has been distributed nationally and Health Protection Units in non-affected areas have been asked to report any cases of measles that might be linked with this outbreak.

Comments knowledge about MMR vaccination programme:

IE: In fact living standard for some (both travellers and Roma) would be as for normal population, but for some it would be very poor (Some Irish Travellers living in caravans on sites with inadequate sanitation facilities)- recent Traveller study reported that about 23% of respondents reported unhealthy or unsafe living environment

http://www.dohc.ie/publications/aiths2010/ExecutiveSummary/AITHS2010_SUMMARY_LR_All.pdf?direct=1

For some Roma, very crowded living conditions.

Comments activities undertaken to address differences in MMR vaccine:

IE: For Irish travellers in response to recent outbreak leaflet prepared and increased efforts to improve MMR coverage. However, for Roma community no specific translations into their dialect although Romanian leaflets exist and also some other EU languages http://www.immunisation.ie/en/EXTRADOWNLOADS/Text_14124_en.html.

GB: Irish traveller communities/site are found throughout the GB and local plans are available rather than country-wide; again, local rather than country-wide; the success of these activities varies across the different sites by location and status (i.e. permanent, semi-permanent, temporary). Some health protection teams have reported very good uptake of MMR initiatives, others have had difficulties even entering site.

Anthroposophic

Four countries reported that they had anthroposophic groups in their countries (DE, IE, NL, GB).

The following information was provided by these countries:

DE: www.damid.de; <http://www.anthroposophischeaerzte.de/>

IE: <http://www.anthroposophy.ie/index.html>. Generally this is a very small proportion of the population.

However most would not necessarily see themselves as fully anthroposophic, some may attend Steiner schools but not all attending Steiner schools follow this philosophy completely – relatively few schools in Ireland, most in south/west of country.

NL: i.e. Steiner schools (see e.g. <http://www.waldorfschule.info/en/waldorfschule-bund/adresses/index.html>).

GB: Rudolph Steiner.

Further details relating to the anthroposophic communities can be found in table16.

Table 16. Description of anthroposophic subgroups and vaccine uptake among them. Analysis of determinants for low MMR vaccination coverage in Europe, November 2010.(n=4)

	Subgroups	Countries
<i>General description of anthroposophic subgroup and vaccine uptake among them</i>		
Anthroposophic communities	Yes	DE,IE,NL,GB
How big is that community?	Not known	DE,IE,NL,GB
Are they located in specific regions or sub-regions of your country?	No	DE,GB
	Yes	IE*
	Not known	NL
If yes, please specify:	Spread around country not in particular communities usually, however possibly higher proportion of them are living in south and south west of country	IE
If no, are they resident uniformly across the country?	Yes	DE
	No	GB
Do children of these communities have separate (special) schools/crèches (kindergartens) from other children in the country?	Yes	DE,IE,NL
	No	GB
Do these communities have mass gatherings that can facilitate the spread of measles, mumps, and rubella?	Not known	DE, IE NL,GB
Has your country had epidemics/outbreaks among this population of measles, mumps, and rubella for recent 5 years?	Yes	DE,NL,IE
	No	GB
If yes, please specify disease and links to published reports	measles;	DE*
	measles outbreak recently which started in travellers spread to rest of community, and cases reported from families objecting to vaccination in south of country	IE
	measles 2008 (http://www.ncbi.nlm.nih.gov/pubmed/20202450)	NL

Is there an estimate of MMR vaccine coverage among these communities in your country?	Not known	DE
	No	IE,NL,GB
If you do not have data on uptake in this group, please specify why it is not possible to estimate vaccine uptake among them?	This population is included in the general population vaccine uptake estimate	IE
	There is no anthroposophic sub group identifier in the immunisation system	IE,NL
	There is no legal and ethical approval to collect this information	IE,GB
Possible barriers to obtain MMR vaccination		
Have any studies been undertaken to identify the barriers to vaccination in these communities?	Not known	DE,GB
	No	IE
	Yes, but only in some regions	NL
What barriers to vaccination for these communities have been identified? (either perceived or existing, data from studies or experience in dealing with the communities):	Social/cultural	DE,IE,GB
	Other: anthroposophic beliefs	NL
	Steiner proposed that febrile illnesses such as measles and scarlet fever were related to a child's spiritual development - the avoidance of immunisation in these communities is more than a refusal to accept conventional medicine - measles is seen as a positive opportunity for the child to benefit from the illness itself	GB
Accessibility to MMR vaccination services		
Are MMR vaccination services easily accessible (i.e. no financial deterrent, convenient (time and place), population know how to enrol and obtain services easily) to these communities?	Yes	DE,IE,NL,GB
Is MMR vaccination for preschool and school children from these communities funded from the state budget?	Yes	DE,IE,NL,GB
Are members of these communities entitled to register with a family doctor in the primary health care service?	Yes	DE,IE,NL,GB
If yes (or some of them), is registration for this population similar to that of the rest of the population?	Yes	DE,IE,NL,GB
Are individuals from these communities entitled to have (receive) vaccination service in the primary health care service?	Yes	DE,IE,NL,GB
If yes, is this the same as vaccination service entitlements	Yes	DE,IE,NL,GB

for the rest of the population?		
Are members of these communities entitled to seek only emergency medical service?	No	DE,IE,NL,GB
Do you believe that there is an element of poor communication between health professionals and these communities in your country?	No	DE,IE,NL,GB
Do these communities lack legal documentation which makes it difficult to access to health insurance or health services?	Yes, for some of them	DE
	No	IE,NL,GB
Do any of the following issues apply to this population group:	Lack access to health information in your country (either materials or modes)	DE
	Lack of legal documentation making it difficult to access to health insurance or health services	DE
	None of the above	IE,NL,GB
Knowledge about MMR vaccination programme		
In comparison to the average population, what is the average living standard of this community?	High living standard	DE,IE
	Not known	NL
	The same	GB
In comparison to the average population, what is the average level of education of this group?	Higher	DE,IE
	Not known	NL
	The same	GB
Do individuals from these communities lack access to health information (either materials or modes of obtaining information)?	No	DE,IE,GB
	Not known	NL
Do these communities have language barriers that may impair their ability to access health information?	No	DE,IE,NL,GB
Can children from these communities be easily contacted and made aware that they should attend for vaccination?	Yes, easily	DE,
	Not known	IE, NL,GB
If yes, how are they contacted?	By letter, phone, personal home visit(from GP or immunisation service)	IE
	Other: by school or kindergarten	DE
Activities undertaken to address differences in MMR vaccine		
Does your country have a special strategy (plans) to reach this population on a regular basis for MMR vaccinations?	No	DE,IE,NL,GB
Does your country have special information materials routinely available for this community (e.g.	No	IE,NL
	Yes	DE

vaccination leaflets in their language or special advertisements)?	Not known	GB
Has your country had a communication campaign specifically targeted at these communities?	Yes	DE
	No	IE,NL,GB
Are there special clinical staff (and/or peer educators) trained to work with this community?	Yes	DE
	No	IE,NL,GB
Has your country organised special vaccination clinics in recent (4-5 years) years for these communities?	Yes, regionally	DE,IE
	No	NL,GB
If yes, please specify which of the following:	Special community clinics	DE
	Special school clinics	IE
If yes, were these efforts successful?	Not known	DE
	No: in some areas when outbreaks were reported parents were not interested in the vaccination to prevent measles	IE
Have any incentives been used to increase vaccination coverage in this community?	Not known	DE
	No	IE,NL,GB

*http://www.rki.de/clin_160/nn_494538/DE/Content/Infekt/EpidBull/Archiv/2010/23/Art_01.html; http://www.rki.de/clin_160/nn_494538/DE/Content/Infekt/EpidBull/Archiv/2010/23/Art_01.html; http://www.rki.de/clin_160/nn_494538/DE/Content/Infekt/EpidBull/Archiv/2007/37_07_templateld=raw,property=publicationFile.pdf/37_07.pdf; <http://www.eurosurveillance.org/images/dynamic/EE/V15N13/V15N13.pdf>

Comments general description of anthroposophic subgroup and vaccine uptake among them:

DE: the anthroposophic idea is very common in Germany. We have 212 schools that are acknowledged by the state. The German and Austrian anthroposophic physicians meanwhile recommend measles vaccination for adolescents.

http://www.gamed.or.at/ademailbilder/stellungnahme_masern_0508.pdf

IE: this group would include individuals with varying degrees of anti-vaccine beliefs and anthroposophical beliefs--not easily categorised.

GB: Hanratty B, Holt T, Duffell E, Patterson W, Ramsay M, White JM, Jin L, Litton P. GB measles outbreak in non-immune anthroposophic communities: the implications for the elimination of measles from Europe. *Epidemiol Infect* 2000; 125: 377-383 - this publication gives details relating to some of the above questions.

Comments possible barriers to obtain MMR vaccination:

DE: followers of anthroposophic medicine believe that measles are associated with developmental progress for children.

IE: studies done generally on uptake may have included some parents who have leanings towards anthroposophy...but no specific studies done on groups that identify themselves as belonging to this group.

Comments accessibility to MMR vaccination services:

DE: Referring to people who live illegally in Germany.

IE: this group are usually highly literate and have made definite decisions regarding non-vaccination.

Comments knowledge about MMR vaccination programme:

DE: the answers are referring to anthroposophic communities only.

IE: although no formal studies with this population, anecdotal reports from the areas suggest that parents objecting to vaccination for anthroposophical reasons tend to be well educated (probably better than general population). Unless these children are in Steiner schools they would not be identified as anthroposophic (or as potentially so)

Comments activities undertaken to address differences in MMR vaccine:

DE: the answers are referring to Roma population; campaigns for Roma were conducted only regionally.

IE: when outbreaks occur in areas with high proportion of parents following this philosophy MMR vaccination clinics in schools where many of these children attend are not always successful in achieving high uptake---but need to remember that in general this population is relatively small in comparison to rest of population.

GB: Steiner proposed that febrile illnesses such as measles and scarlet fever were related to a child's spiritual development - the avoidance of immunisation in these communities is more than a refusal to accept conventional medicine - measles is seen as a positive opportunity for the child to benefit from the illness itself. These communities are not receptive to specific targeting of MMR vaccine.

Economic migrants

Three (GR, IE, GB) countries reported economic migrant sub groups within their population that refrain from MMR vaccination.

Table 17. General description of economic migrants' subgroup and vaccine uptake among them. Analysis of determinants for low MMR vaccination coverage in Europe, November 2010.(n=3)

	Subgroups	Countries
General description of economic migrants subgroup and vaccine uptake among them		
Economic migrant communities	Yes	GR,NL,GB
Is there an estimate of MMR vaccine coverage among this group in your country?	Yes	GR
	No	IE, NL,GB
If yes, please specify which method was used to estimate vaccine uptake for this group(s) vaccination coverage (%), year of data collection and age at which vaccination coverage is measured:	Measured using survey methods: dose 1-6years, 99% in 2006 dose 2-6years, 64% in 2006	GR
If you do not have coverage data in this group, please specify why you are unable to estimate vaccine coverage in this group	This population is included in the vaccine uptake estimate of the general population	IE, GB
	There is no migrants sub group identifier in the immunisation system	IE, NL,GB
Accessibility to MMR vaccination services		
Can children from these communities be easily contacted and made aware that they should attend for vaccination?	School entry	GR
If no for any of the above, for which of the following reasons is contact difficult?	Lack permanent address in your country?	GR

Comments general description of economic migrants subgroup and vaccine uptake among them

GB: A small number of cases of measles, mumps and rubella (including infection in pregnancy) have been detected thro our surveillance systems in economic migrants (mainly Polish or Romanian) - these are usually adults who have not received/had opportunity to receive vaccine in their country of origin rather than failing to be immunised in the GB.

Comments possible barriers to obtain MMR vaccination:

NL: language barrier, illiteracy.

IE: language barrier possible for some.

GR: For children to be registered in elementary school there must be written proof that they are fully vaccinated.

RECOMMENDATIONS TO ECDC

Assistance or technical support in relation to MMR vaccination among sub-groups in EU/EEA suggested by countries provided in the table 18.

Table 18. Requested support from (comments for) ECDC. Analysis of determinants for low MMR vaccination coverage in Europe, November 2010. (n=13)

Country	Comment
BE	E.g. a guidance document on the problem in Anthroposophic schools;
EE	Vaccine information;
FR	Technical guidelines;
DE	Compilation of best practices to reach these groups; best practice addressing Roma population;
GR	Provide administrative method to estimate coverage which can be used in all countries; common administrative method in order to estimate coverage;
HU	EU recommendations for target vaccination coverage among sub-groups;
IE	Demonstration of what works in different countries would help; need more studies to identify problem in Ireland;
IT	Dissemination of experiences and strategies adopted in other countries
LU	Information tools for the public;
NL	To gather the evidence base for interventions to improve MMR coverage in specific groups;
PL	Facilitate national studies, providing examples and technical support;
PT	To countries who need it;
ES	To provide technical documents about the Adverse effects of MMR controversy.

Summary and conclusions

MMR vaccination coverage (VC) monitoring

All 25 survey responding countries monitor MMR vaccination coverage at national level. Twenty four (RO did not respond) of them monitor VC using only administrative (n=18), only survey (BE, CY, CZ, GR, LU, SI; n=6) or both methods (FR, DE, IS, IT; n=4). Age at which MMR VC is monitored varies between countries.

MMR1: Twenty four countries monitor MMR1 VC with age range between 12 months and 6 years. Nineteen of these countries monitor MMR 1 VC before or at age of 24 months (n=19). One country – SE monitor MMR1 at age 24-36 months; four countries (AT, PL, GR, LU) monitor MMR1 at older ages (range at 36 months-6 years). Four countries (FR, DE,IT,IS) monitor MMR1 using both methods but at different age when compared with administrative method (except IT which monitor MMR1 at 24 months).

MMR2: Twenty countries (SI, IE, LU did not monitor MMR2 at the time VENICE survey was conducted) monitor MMR2 VC using either administrative (n=16) either survey methods (BE,CY,GR,IT; n=4), or both (FR,IS,DE). Age range at which MMR2 is monitored varies greatly between countries from 24 months to 17 years.

Vaccination coverage

National

MMR1: All countries (n=24) that monitor MMR1 reported national VC. Overall VC was high among countries and varied from 82% to 100% between them. Fifteen countries (15/24; 63%) reported equal or higher than 95% VC for MMR1 and achieved WHO targets. In the remaining nine countries reported MMR1 VC range was from 82% to 94.5%.

MMR2: Overall comparing VC for the 1st and 2nd dose VC for 2nd dose was lower than the 1st one. Of 16 countries that measure VC using administrative method six countries reported VC almost equal or higher than 95%. In the remaining nine countries VC varied from 79% to 94% (one country did not provide VC data). The reported VC estimated by survey methods in nine countries was lower than measured by administrative method. VC varied from 45% to 90% for different age groups across these eight countries. None of these countries reported coverage exceeding the minimal (95%) WHO target.

Sub national

MMR1: Of 14 countries that provided sub national data differences between regions in uptake were seen in some countries (e.g. BG, NL, DE,PT,SE,IT,ES,BE). In some of these countries differences between regions are substantial (e.g. IT), however in others it is minimal or limited to just one region of the country (e.g. NL- Zeeland; SE-Uppsala, DE-Bavaria). However this specific region may be related with living here specific sub population that refrain from vaccination and/or have less VC among them. This is very crude comparison; no statistical methods were applied looking at these data.

MMR2: Of 13 countries (MMR VC for IE not known) reporting MMR2 sub national data regional variation of VC were seen in almost all countries (except SK).

Sub groups

Ethnic groups: Two (FR,GR) of five responding countries (GR,IE,NL,FR,GB,IT) to this set of questions were able to provide VC data for these specific groups of population (55% among those <30 years old in FR; 82% for dose 1 and 45% for dose 2 at 6 years of age in 2008 in GR).

Religious subgroup: one country-NL- described religious sub group in their country – Orthodox reformed; VC is not available for this particular group, because there is no religious sub group identifier in the immunisation system.

Anthroposophic groups: Four countries reported that they have such groups in their country (DE,IE,NL,GB) but none were able to provide VC data for this group.

Economic migrants: Three countries (GR,NL,GB) specified that there is this specific population subgroup in their country that refrain from vaccination. GR provided VC data among this specific group of population: 99% for 1st dose and 64% for 2nd dose at 6 years in 2006.

The reasons for not collecting VC data among these specific sub groups (ethnic, religious and anthroposophic) reported by responding countries: these population groups are included to the general population vaccine uptake estimate; there is no sub group identifier in the immunisation system; there is no legal or ethical approval to collect this information.

HCWs

Of 25 responding countries 13 recommend vaccination of HCWs (SI has recommendation to vaccinate only women HCWs). Only one country- FR- reported VC for HCWs (50%), which was estimated using survey methodology. No studies were undertaken in the most countries to identify barriers to vaccination among HCWs (except GB and PL). Six countries (BG, IS, EE, ES, FR, GB) reported that some activities were undertaken to increase VC among HCWs.

Population subgroups

Religious, ethnic, anthroposophic, economic migrants

Only few countries responded to the part of questionnaire that describes religious, ethnic, anthroposophic and economic subgroups. The low response rate to this may indicate that most countries do not have or do not recognise low MMR VC as an issue due to some reasons in their countries. It may also indicate that gatekeepers are not the experts in countries who have particular knowledge of VC among these subgroups and were unable to provide information on this matter.

Specific age groups

Nine of 23 countries reported that there is low VC among certain age groups in their countries (five of them see the problem among teenagers and young adults; four among children). Six of nine countries implemented some activities to improve VC.

Appendices

Appendix 1. Sub national MMR vaccination coverage (VC)

MEASURED USING ADMINISTRATIVE METHODS AMONG COUNTRIES

Vaccination coverage data measured using administrative method to monitor vaccine uptake for sub-national level presented in a table 19.

Table 19. Sub-national MMR vaccination coverage measured using administrative methods among countries. Analysis of determinants for low MMR vaccination coverage in Europe, November 2010.(n=13)

Region	VC (%) for dose 1 by age and year	VC (%) for dose 2 by age and year
Bulgaria	13 months, 2009	12 years, 2009
Smoljan	94.5	96.3
Russe	90.1	80.4
Stara Zagora	95.6	95.5
Lovech	96	96.2
Shumen	95.1	84.5
Gabrovo	89.5	92.6
Kustendil	95.4	91.1
Pazardzhik	99.5	99.2
Silistra	96.8	91.7
Vratsa	96.4	93.1
Pernik	99.4	96.2
Jambol	99.1	97.2
Sofia city	99.3	88.4
Plovdiv	95.4	94.8
Targovishte	91.1	87.5
Pleven	93	95.3
Sofia region	97	96.4
Montana	91.6	90.1
Sliven	92.4	92.8
Varna	92.7	90.3
Dobrich	95.6	96.9
Veliko Tarnovo	98.7	97.4
Burgas	98.8	98.1
Kardzhali	98.2	97.3
Razgrad	95.1	94.9
Vidin	93.1	91.5
Haskovo	95.1	87.4
Blagoevgrad	98.4	93.8
Hungary	15 months, 2009	11 years, 2009
Borsod-Abauj-Zemplen	99.8	99.4
Szabolcs-Szatmar-B	99.8	99.7
Jasz-Nagykun-Szolnok	99.9	99.5
Baranya	99.8	99.7
Csongrad	99.9	99.8
Nograd	100	99.8
Tolna	99.8	99.7

Vas	99.7	99.5
Gyor-Moson-Sopron	99.5	99.9
Bacs-Kiskun	99.9	99.9
Bekes	100	99.9
Fejer	99.9	99.9
Komarom-Esztergom	99.9	99.6
Somogy	100	99.8
Veszprem	99.8	99.9
Heves	99.9	99.9
Zala	99.9	99.8
Budapest	99.8	99
Pest	99.7	97
Hajdu-Bihar	99.8	98.7
Ireland	24 months, 2009	4-5 years, 2009
HSE Midwest	91	NK*
HSE West	90	NK*
HSE South	90	NK*
HSE Northeast	92	NK*
HSE Southeast	90	NK*
HSE East	89	NK*
HSE Northwest	92	NK*
HSE Midlands	93	NK*
Netehrlands	24 months, 2010	10 years, 2010
Noord-Holland	97	93
Zuid-Holland	96	93
Limburg	97	95
Utrecht	96	93
Flevoland	95	92
Groningen	98	96
Zeeland	91	88
Noord-Brabant	98	95
Gelderland	94	89
Friesland	98	97
Overijssel	97	93
Drenthe	98	96
Portugal**	15 months, 2010	5-9 years, 2010
Algarve	93	94
Lisboa Vale do Tejo	91.5	90
Madeira	98	96
Alentejo	95	95
Centro	96	95
Norte	97	96.7
Azores	88	99
Slovakia	14-17 months,2009	10 years, 2009
Presov	98.4	99
Banska Bystrica	98.5	98.9
Kosice	98.1	99.1
Zilina	99.3	99.6
Bratislava	98.9	99.3
Trnava	99.7	99.8

Trencin	99.2	99.5
Nitra	99.5	99.6
Sweden	24-35 months, 2009	12-13 years, 2009
Stockholm	95.3	95
Örebro	98.4	96.6
Västmanland	97.3	92.6
Gotland	97.1	95.6
Västerbotten	97.2	95.4
Norrbottn	97.5	94.6
Gävleborg	97.2	93.2
Kronoberg	98.3	94.6
Värmland	98.1	96
Uppsala	93.4	94.6
Blekinge	98.7	94.5
Jämtland	96.7	94.7
Dalarna	97	94.1
Västernorrland	97.2	91.4
Östergötland	97.9	95.7
Kalmar	98.6	97.3
Västra Götaland	96.2	95.8
Skåne	96	94.7
Södermanland	98	94.6
Halland	98.3	96.5
Jönköping	98.1	96.7
United Kingdom	24 months, 2009	5 years, 2009
London	76	63
Poland	3 years, 2009	11 years, 2009
Dolnoslaskie	96.9	91.7
Kujawsko-pomorskie	99.5	99.7
Lubelskie	98.9	98.9
Lubuskie	99.4	99.4
Lodzkie	98.4	95.7
Malopolskie	97.9	98.2
Mazowieckie	97.2	92.6
Opolskie	99	97.2
Podkarpackie	98.6	93.2
Podlaskie	98.9	98.4
Pomorskie	98	95
Slaskie	98.2	95.5
Swietokrzyskie	99.1	99.4
Warminsko-mazurskie	99.8	99.9
Wielkopolskie	98.9	98.9
Zachodniopomorskie	98.8	99.3
Italy	24 months, 2009	-
PA Trento	88.5	-
Piemonte	93.1	-
Abruzzo	92.2	-
Friuli VeneziaGiulia	91.4	-
Basilicata	90.2	-
Emilia Romagna	93.9	-

Marche	92.4	-
Liguria	87.9	-
Molise	88.8	-
Puglia	92.3	-
Umbria	95.2	-
Veneto	93	-
Lombardia	94.8	-
Lazio	89.6	-
Calabria	85.4	-
Campania	86.9	-
Sicilia	86.8	-
Sardegna	95.5	-
Toscana	92.7	-
Valle d'Aosta	87.8	-
PA Bolzano	70.8	-

NK*-Not known

** PT-1st semester 2010 evaluation (data from 30th June), so they are an under-estimation of the final coverage of these cohorts, that will take place on the 31th of December.

Region	VC (%) for dose 1 by age and year	VC (%) for dose 2 by age and year	Catch up dose
Lithuania	15-16,5 months,2009	6-7 years, 2009	12 years, 2009
Telsiai	97	95	98
Taurage	97	90	97
Klaipeda	98	96	98
Vilnius	97	96	99
Kaunas	97	95	98
Panevezys	96	96	99
Siauliai	98	96	99
Alytus	96	98	100
Marijampole	97	94	98
Utena	98	97	99

Region	Dose 1		Dose 2	
Germany	4-7 years	VC(%), 2008	4-7 years	VC(%), 2008
Saxony	7	97	7	87
Rhineland-Palatine	5	96	5	88
Lower Saxony	5	96	5	90
Bremen	5	95	5	86
Brandenburg	5	98	5	93
Hamburg	5	95	5	90
Mecklenburg-West Pom	5	98	5	94
Saarland	5	97	5	91
North Rhine-Westphal	5	97	5	91
Hesse	5	96	5	89
Saxony-Anhalt	4	98	4	92
Berlin	5	95	5	88

Baden-Wuerttemberg	5	95	5	87
Schleswig-Holstein	5	96	5	90
Thuringia	5	98	5	94
Bavaria	5	93	5	85

Region	Dose 1			Dose 2		
Spain	12-15 months	VC(%)	2008-2009	3-6 years	VC (%)	2008-2009
Galicia	15	99	2008	3	96	2008
Cantabria	15	99	2009	6	99	2009
Andalucia	15	96	2009	3	87	2009
Castilla La Manch	15	94	2009	6	91	2009
Castilla y Leon	15	94	2009	6	93	2009
Cataluna	12	99	2009	4	92	2009
Murcia	15	96	2009	6	92	2009
Pais Vasco	12	96	2009	4	96	2009
Ceuta	15		2009	6		2009
Baleares	15	97	2009	6	96	2009
Navarra	15	94	2009	3	91	2009
Aragon	15	96	2009	6	97	2009
Extremadura	15	96	2009	6	94	2009
Canarias	15	97	2009	6	93	2009
Asturias	15	97	2009	3	99	2009
Madrid	15	99	2009	4	83	2009
Rioja	15	97	2009	3	96	2009
Comunidad Valenciana	15	96	2008	6	96	2008
Melilla	12	96	2009	4	86	2009

ESTIMATED USING SURVEY METHODS AMONG COUNTRIES

Vaccination coverage data estimated using survey method to monitor vaccine uptake for sub-national level presented in a table 20.

Table 20. Sub-national MMR vaccination coverage estimated using survey methods in Belgium and Italy. Analysis of determinants for low MMR vaccination coverage in Europe, November 2010. (n=2)

Region	Dose 1		Dose 2	
Belgium*	VC (%) at 12 months	Year	VC (%) at 10-13 years	Year
Wallonia	92.4	2009	75.5	2009
Brussels	91.1	2006	70.5	2006
Flanders	96.6	2008	90.6	2008

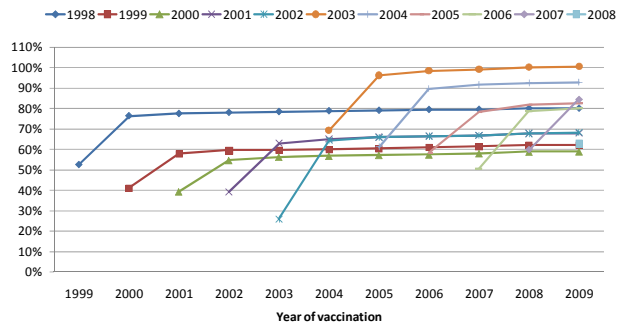
*For BE no national survey on MMR is conducted. The national data on MMR vaccination coverage are based on a weighted average of the 3 regional cluster sample surveys that are regularly conducted, using mid-year population data. Most recent survey in Wallonia was in 2009. The most recent data available for Flanders are from 2008. For Brussels the most recent data are from 2006.

Region	Dose 1		Dose 2
Italy	12-24	16 years, 2008	16 years, 2008

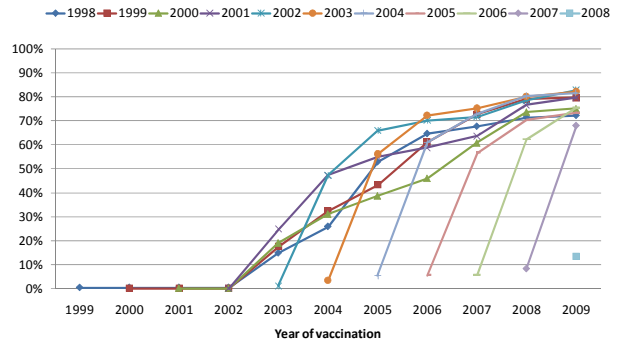
	months, 2008		
PA Trento	89.5	90.5	76.7
Piemonte	91	83.3	61.9
Friuli VeneziaGiulia	-	-	-
Basilicata	86.7	79.5	48.1
Emilia Romagna	89	94	79.2
Marche	91.9	90	69
Liguria	85.2	79.7	57.1
Molise	92	86	70
Puglia	84.8	78.6	53.8
Abruzzo	86.1	80.5	60.5
Umbria	-	-	-
Veneto	88.1	97.1	80.5
Lombardia	94.8	89.5	70.9
Lazio	83.2	67	38.4
Calabria	81.2	53.2	21.2
Campania	90.6	62.1	32.4
Sicilia	74.7	59.7	29.8
Sardegna	88.1	83.3	42.4
Toscana	76.7	90.9	75.2
Valle d'Aosta	93	84	72
PA Bolzano	-	-	-

Appendix 2. Sub national vaccination coverage data from Austria.

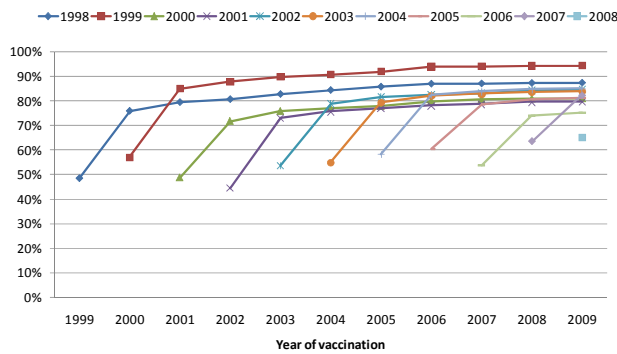
Measles vaccination MMR1: Burgenland
Vaccination coverage according to birth cohort



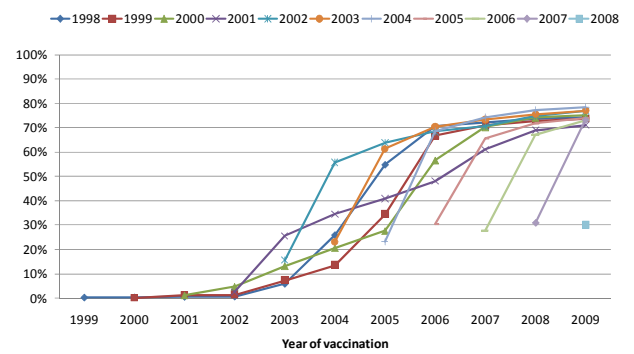
Measles vaccination MMR2: Burgenland
Vaccination coverage according to birth cohort



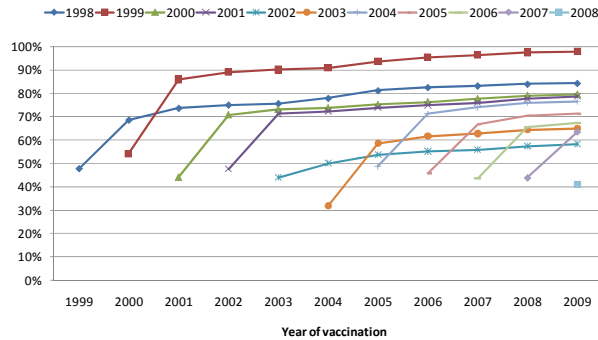
Measles vaccination MMR1: Carinthia
Vaccination coverage according to birth cohort



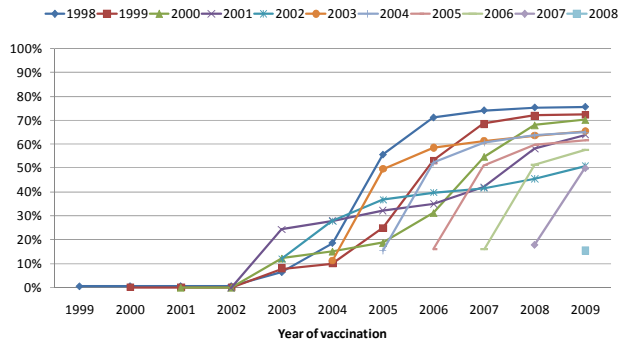
Measles vaccination MMR2: Carinthia
Vaccination coverage according to birth cohort



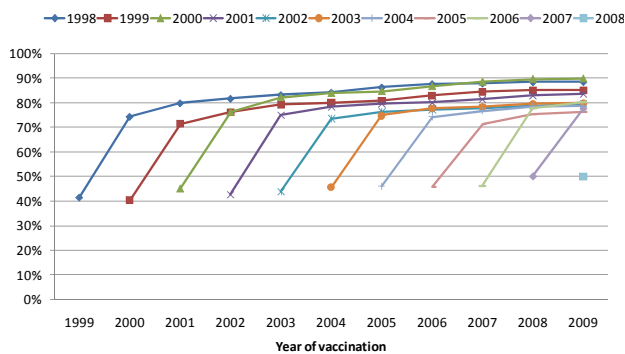
Measles vaccination MMR1: Lower Austria
Vaccination coverage according to birth cohort



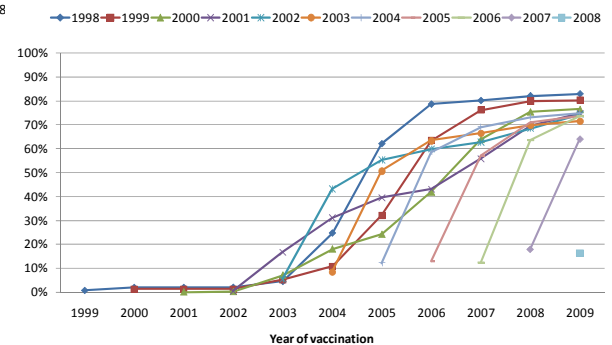
Measles vaccination MMR2: Lower Austria
Vaccination coverage according to birth cohort



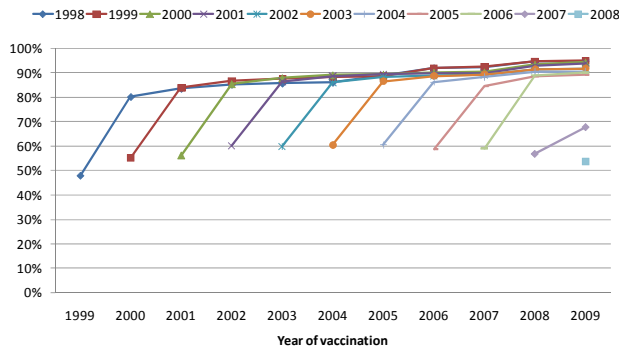
Measles vaccination MMR1: Upper Austria
Vaccination coverage according to birth cohort



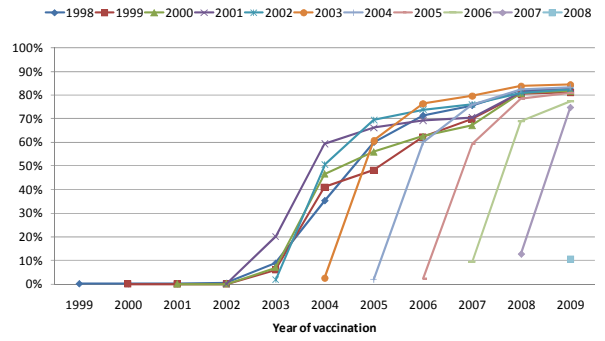
Measles vaccination MMR2: Upper Austria
Vaccination coverage according to birth cohort



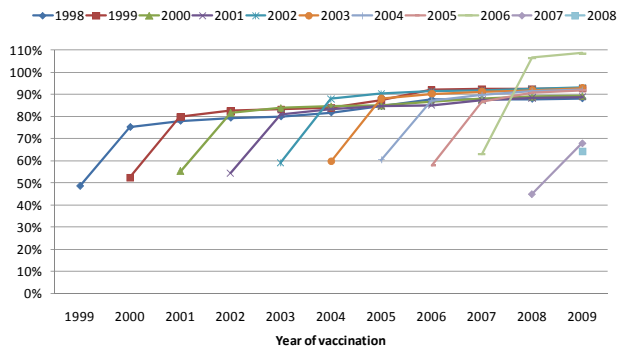
Measles vaccination MMR1: Salzburg
Vaccination coverage according to birth cohort



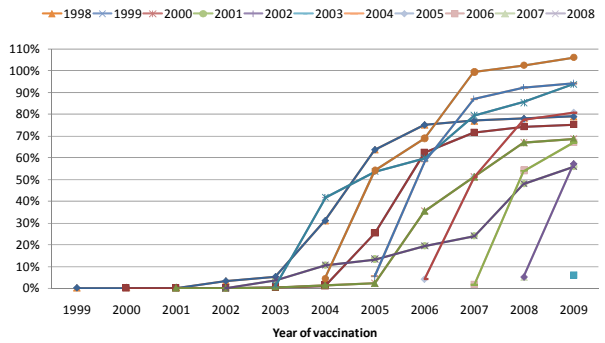
Measles vaccination MMR2: Salzburg
Vaccination coverage according to birth cohort



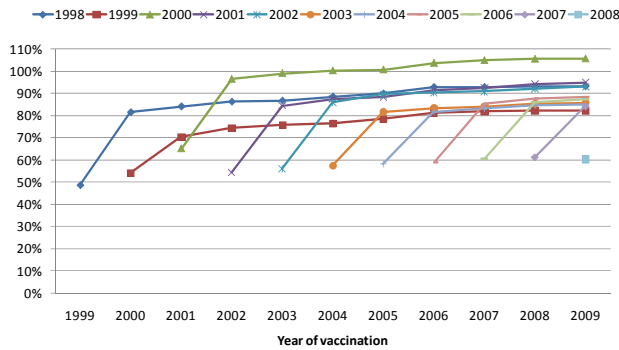
Measles vaccination MMR1: Styria
Vaccination coverage according to birth cohort



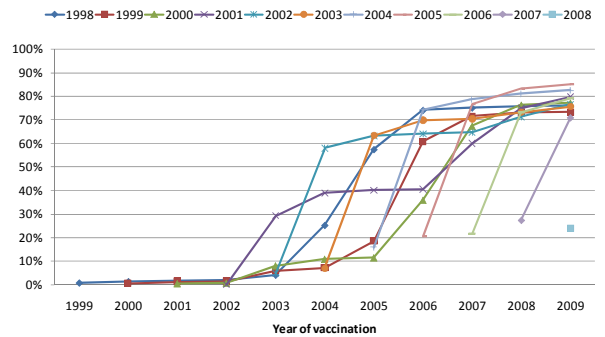
Measles vaccination MMR2: Styria
Vaccination coverage according to birth cohort



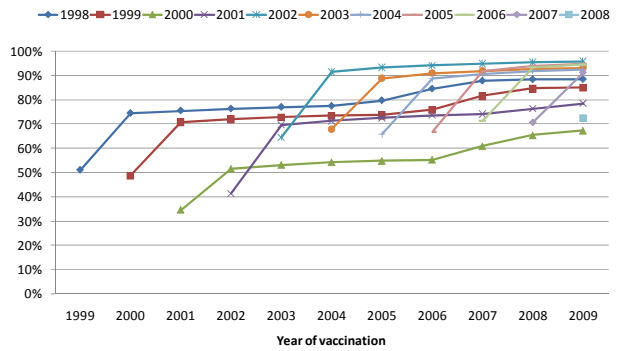
Measles vaccination MMR1: Tyrol
Vaccination coverage according to birth cohort



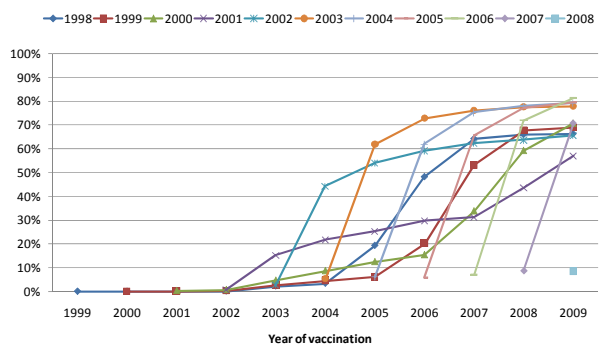
Measles vaccination MMR2: Tyrol
Vaccination coverage according to birth cohort



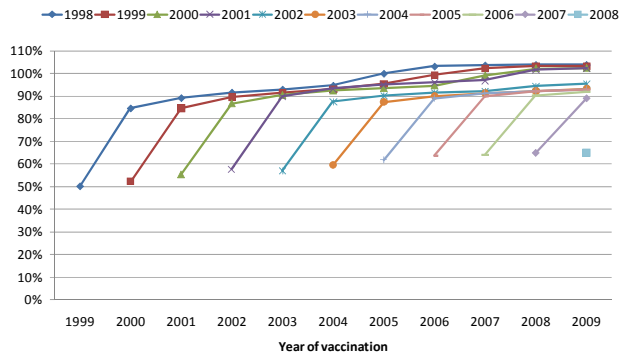
Measles vaccination MMR1: Vorarlberg
Vaccination coverage according to birth cohort



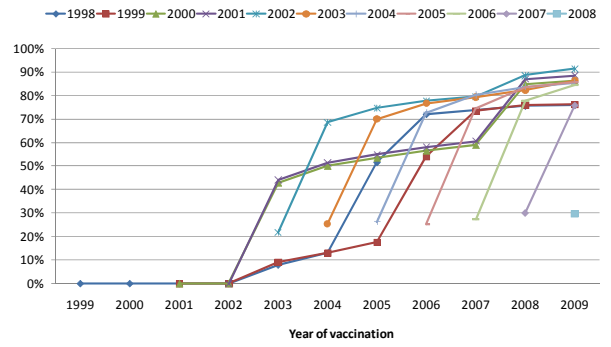
Measles vaccination MMR2: Vorarlberg
Vaccination coverage according to birth cohort



Measles vaccination MMR1: Vienna
Vaccination coverage according to birth cohort



Measles vaccination MMR2: Vienna
Vaccination coverage according to birth cohort



Appendix 3. Links to the studies undertaken to evaluate determinants for low MMR vaccination.

1. IT - <http://www.ncbi.nlm.nih.gov/pubmed/>;
2. BE- In vaccination coverage surveys socio-demographic factors are investigated; Following a measles outbreak in Orthodox Jewish children in Antwerp a survey was undertaken (accepted for publication);
3. BG- Survey on the performance of the National immunization program in infants of Roma and Bulgarian origin in Sofia region, born 2006, Paediatrics, 2010, 3, pp 23-28;
4. CY- [http://www.moh.gov.cy/MOH/moh.nsf/All/990814DC2364D293C22576E2003CD058/\\$file/deltio%202009.pdf?OpenElement](http://www.moh.gov.cy/MOH/moh.nsf/All/990814DC2364D293C22576E2003CD058/$file/deltio%202009.pdf?OpenElement);
5. FR- http://www.invs.sante.fr/beh/2008/51_52/beh_51_52_2008.pdf , http://www.invs.sante.fr/beh/2007/06/beh_06_2007.pdf;
6. DE- <http://www.who.int/bulletin/volumes/87/2/07-050187.pdf>;
7. GR- Vaccine 2010 Feb 17;28 (7):1861-9;
8. IE- <http://jech.bmj.com/content/54/5/394.full>, <http://www.lenus.ie/hse/bitstream/10147/43816/1/4352.pdf>, <http://www.imj.ie/ViewArticleDetails.aspx?ArticleID=339>, <http://www.imj.ie/ViewArticleDetails.aspx?ArticleID=339>, <http://www.scirus.com/srsapp/sciruslink?src=sd&url=http%3A%2F%2Fwww.sciencedirect.com%2Fscience%3Fob%3DGatewayURL%26origin%3DScienceSearch%26method%3DcitationSearch%26piikey%3DS0264410X10009333%26version%3D1%26returnURL%3Dhttp%253A%252F%252Fwww.scirus.com%252F%26md5%3D73eb6c71def22345f068565458e8d61f>;
9. LU- Infant and toddler vaccinations. "EnquEte de couverture vaccinale au Luxembourg 2007-2008" available at <http://www.sante.public.lu/fr/catalogue-publications/rester-bonne-sante/vaccinations/enquete-couverture-vaccinale-lux-2007-oct-2008-mars/index.html>;
10. NL- All diseases covered by NIP, in progress; HPV: Rondy M, van Lier A, van de Kasstele J, Rust L, de Melker H. Determinants for HPV vaccine uptake in the Netherlands: A multilevel study. Vaccine 2010; 28(9):2070-5.
11. PL- All vaccines in routine vaccination schedule, PMID: 20499667
12. SI-<http://www.ncbi.nlm.nih.gov/pubmed/17243551>
13. GB- Produced in 2009 by NICE (National Institute for Health and Clinical Excellence) PH21 Reducing the differences in the uptake of immunisations: guidance <http://www.nice.org.GB/guidance/PH21/guidance> , Extensive list of references used for above guidance at back of <http://www.nice.org.GB/nicemedia/live/11831/44080/44080.pdf>.

Appendix 4. Links to the reported outbreaks of measles, mumps, and rubella involving HCW.

1. IT- <http://www.ncbi.nlm.nih.gov/pubmed/21801692>
Measles <http://www.eurosurveillance.org/viewarticle.aspx?articleid=18928>;
2. BG- measles;
3. FR- <http://www.eurosurveillance.org/images/dynamic/EE/V13N13/art8078.pdf>,
http://www.invs.sante.fr/beh/2009/39_40/beh_39_40_2009.pdf;
4. DE-
http://www.rki.de/clin_178/nn_494538/DE/Content/Infekt/EpidBull/Archiv/2010/23_10,templateId=raw,property=publicationFile.pdf/23_10.pdf;
5. GR-2010 Eurosurveillance, Volume 15, Issue 30, 29 July 2010;
6. IS- Mumps;
7. IE- isolated cases of measles in HCWs during measles outbreak;
8. NL- measles (<http://www.ncbi.nlm.nih.gov/pubmed/18825893>,
<http://www.ncbi.nlm.nih.gov/pubmed/18786588>,
<http://www.ncbi.nlm.nih.gov/pubmed/10675124>;
9. PT- measles, still not published;
10. SI- <http://www.ncbi.nlm.nih.gov/pubmed/20504390>;
11. ES- Measles:
<http://www.eurosurveillance.org/ViewArticle.aspx?ArticleId=3144>;
<http://www.eurosurveillance.org/ViewArticle.aspx?ArticleId=18872>;
Rubella:
<http://www.eurosurveillance.org/ViewArticle.aspx?ArticleId=463>;
<http://www.eurosurveillance.org/ViewArticle.aspx?ArticleId=2742>;
<http://www.isciii.es/htdocs/centros/epidemiologia/pdf/Inf>;
<http://www.eurosurveillance.org/ViewArticle.aspx?ArticleId=2907>.
12. GB- measles : http://www.nwh.nhs.GB/news-media/news_item.cfm?id=99&year=older

Appendix 5. Questionnaire.

ANALYSIS OF DETERMINANTS FOR LOW MMR VACCINATION COVERAGE IN EUROPE, 2010

Country _____
Name of a person who completed questionnaire _____
Date when questionnaire was completed _____

HOW TO COMPLETE QUESTIONNAIRE

The main objective of this survey is to describe the variability of MMR vaccine coverage among different population sub-groups, regions and determinants for such variability. The survey also collects information on MS's ability to detect at a national level those areas or sub-groups with low MMR coverage.

Filling in questionnaire you are asked to complete the I, II, III, IV.5. and IV.6. sections of questionnaire. In the section IV you have to choose relevant subgroups that are present in your country (Ethnic (e.g. Roma, Travelers), Anthroposophic, Religious, Economic migrants, Health Care Workers, Age groups) and complete questions related to that specific subgroups.

I. REGIONAL DIFFERENCES IN MMR VACCINATION COVERAGE

II. ADVERSE MEDIA COVERAGE REGARDING MMR

III. RECOMMENDATIONS

IV. VARIATION AMONG POPULATION SUB-GROUPS

IV.1. RELIGIOUS

IV.2. ETHNIC

IV.3. ANTHROPOSOPHIC

IV.4. ECONOMIC MIGRANTS

IV.5. HEALTH CARE WORKERS

IV.6. DIFFERENT AGE GROUPS

I. REGIONAL DIFFERENCES IN MMR VACCINATION COVERAGE

Q.1. Is MMR vaccine coverage data available for the whole country (national coverage)?

1: Yes, 0: No

Q.1a. If yes, please specify which of the following methods (administrative, surveys) are used to estimate national MMR vaccination coverage, age at which vaccination coverage is monitored (specify months or years), dose and most recent year for which data are available:

Measured using administrative methods (tick if apply)

Dose 1

Age (specify months or years) _____

Vaccination Coverage (%) _____

Year _____

Dose 2

Age (specify months or years) _____

Vaccination coverage (%) _____

Year _____

Catch up dose

Age (specify months or years) _____

Vaccination coverage (%) _____

Year _____

No catch up vaccination in the country

Catch up dose

Age (specify months or years) _____

Vaccination coverage (%) _____

Year _____

No catch up vaccination in the country

Measured using survey methods (tick if apply)

Dose 1

Age (specify months or years) _____

Vaccination coverage (%) _____

Year _____

Dose 2

Age (specify months or years) _____

Vaccination coverage (%) _____

Year _____

Catch up dose

Age (specify months or years) _____

Vaccination coverage (%) _____

Year _____

No catch up vaccination in the country

Catch up dose

Age (specify months or years) _____

Vaccination coverage (%) _____

Year _____

No catch up vaccination in the country

Q.2. If administrative method is used, please indicate which of the following methods are used to measure the numerator assessing vaccination coverage: (Drop menu) (you can tick more than one)

1: Aggregated number of vaccines administered

2: Aggregated number of vaccines distributed by industry

3: Aggregated number of vaccines distributed by national purchaser

4: Aggregated collection of number of vaccines sales (private pharmacies)

5: Payment/reimbursement claims

6: Number of people vaccinated

7: Other, specify _____

Q.3. Is MMR vaccination coverage data available at regional level?

1: Yes, 0: No, 99: Unknown

Q.4. If yes, which method(s) is/are used to measure vaccination coverage and do they differ by region?
 (Drop menu) (you can tick more than one)

- 1: Only administrative method (s) used in whole country
- 2: Only survey method in whole country
- 3: Both methods are used in whole country
- 4: Both methods are used, but specific method used in each region may differ
- 5: Other, specify _____

Q.5. If administrative method used, please indicate the most recent vaccination coverage (VC) available (please specify region, age at which vaccination coverage is monitored (specify months and/or years) for coverage dose 1, coverage dose 2 and catch up if applicable and year of estimate).

Name of the region	Age/ MMR dose 1	VC (%)	Year	Age/ MMR dose 2	VC (%)	Year	Age/ catch up dose	VC (%)	Year	Age/ catch up dose	VC (%)	Year

Q.6. If survey method used, please indicate the most recent vaccination coverage data available (please specify region, age at which vaccination coverage was measured (specify months and/or years) for coverage dose 1, coverage dose 2 and catch up if applicable and year of estimate).

Name of the region	Age/ MMR dose 1	VC (%)	Year	Age/ MMR dose 2	VC (%)	Year	Age/ catch up dose	VC (%)	Year	Age/ catch up dose	VC (%)	Year

--	--	--	--	--	--	--	--	--	--	--	--	--

Q.7. In your country are there regional differences in MMR vaccine coverage by sub-group (i.e. population groups determined either by social, ethnic, philosophical, religious beliefs or customs)?

1: Yes, 0: No, 99: Unknown

Q.8. If yes, do you have any regions or pockets of low coverage for which the following reasons have strongly influenced poor MMR vaccination coverage in your country? (Drop menu)(tick all that apply)

- 1: Internet (antivaccination websites)
 - 2: Fear of side effects
 - 3: Low risk of disease
 - 4: Better with natural immunity than with vaccine induced
 - 5: Belief that the child should receive vaccine at an older age
 - 6: Distrust health services
 - 7: Distrust government policies
 - 8: Perception that there are too many vaccinations for routine vaccination
 - 9: Fear of thiomersal containing vaccines
 - 10: Perception of mildness disease
 - 11: Other reasons,specify_____
- 0: No
99: Unknown

Q.9. Have any surveys/studies been undertaken in your country to evaluate determinants of low vaccination coverage for vaccination in general and/or only for MMR vaccination?

- 1: Yes, vaccinations generally including MMR
- 2: Yes, only for MMR
- 0: No
- 99: Unknown

Q.9a. If yes, please specify disease and provide links to published reports:_____

II. ADVERSE MEDIA COVERAGE REGARDING MMR

Q.1. Has MMR vaccine coverage in your country been affected by negative media coverage (TV networks, radio broadcast, press releases)?

1: Yes, 0: No, 99: Unknown

Q.1a. If yes, which of the following types of coverage have had major negative influences? (tick all that apply)

- 1: Publications in peer review journals
- 2: Human interest stories
- 3: Well known personalities speaking out against MMR vaccine
- 4: Non- specific anti- vaccine stories
- 5: Other, specify _____

Q.2. Was MMR vaccine coverage in your country adversely affected by the scientific article (Wakefield et. all) that suggested the link between MMR vaccine and autism?

1: Yes, 0: No, 99: Unknown

Q.3. If yes, which of the following were negatively influenced? (tick all that apply)

- 1: Parents
- 2: Health care providers
- 3: Both: parents and health care providers
- 4: Other, specify_____

III. RECOMMENDATIONS

Q.1. Do you think there is a role for ECDC to assist or provide technical support in relation to MMR vaccination among sub-groups in EU/EEA?

1: Yes, 0: No

If yes, specify: _____

Q.2. Do you have any recommendations or needs addressing these issues?

1: Yes, 0: No

If yes, specify: _____

IV. VARIATION AMONG POPULATION SUB-GROUPS (RELIGIOUS, ETHNIC, ANTHROPOSOPHIC)

IV.1. RELIGIOUS SUB-GROUPS

IV.1.A. General description of religious subgroup and vaccine uptake among them

Q.1. Are there communities in your country that refrain from vaccination on religious grounds?

1: Yes, 0: No, 99: Unknown

Q.1a. If yes, please identify that group(s) by name _____

Q.2. How big is this community(ies)? (Please provide approximate estimation if it is available) _____

Estimation of this population is unknown

Q.3. Are these communities located in specific regions or sub-regions of the country?

1: Yes, 0: No, 99: Unknown

Q.4. Do children of these communities have separate (special) schools/creches (kindergartens) from other children in the country?

1: Yes, 0: No, 99: Unknown

Q.5. Does these communities have mass gatherings that can facilitate the spread of measles, mumps, and rubella?

1: Yes, 0: No, 99: Unknown

Q.5a. If yes, specify type of mass gatherings that occur _____

Q.6. Has your country had epidemics/outbreaks (Appendix 1: definition of outbreak/epidemic) among this population of measles, mumps, and rubella for recent 5 years?

1: Yes, 0: No, 99: Unknown

Q.6a. If yes, please specify disease and provide links to published reports: _____

Q.7. Is there an estimate of MMR vaccine coverage among this group in your country?

1: Yes, 0: No, 99: Unknown

Q.7a. If yes, please specify which method was used to estimate vaccine uptake for this group(s) vaccination coverage (%), year of data collection and age at which vaccination coverage is measured:

Measured using administrative methods

Dose 1

Age (specify months or years) _____

Coverage (%) _____

Year _____

Dose 2

Age (specify months or years) _____

Vaccination coverage (%) _____

Year _____

Catch up dose

Age (specify months or years) _____

Vaccination coverage (%) _____

Year _____

No catch up vaccination

Catch up dose

Age (specify months or years) _____

Vaccination coverage (%) _____

Year _____

No catch up vaccination

Measured using survey methods

Dose 1

Age (specify months or years) _____

Vaccination coverage (%) _____

Year _____

Dose 2

Age (specify months or years) _____

Vaccination coverage (%) _____

Year _____

Catch up dose

Age (specify months or years) _____

Vaccination coverage (%) _____

Year _____

No catch up vaccination

Catch up dose

Age (specify months or years) _____

Vaccination coverage (%) _____

Year _____

No catch up vaccination

Q.8. If you do not have coverage data in this group, please specify why you are unable to estimate vaccine coverage in this group (Drop menu) (tick all that apply)

1: This population is included in the vaccine uptake estimate of the general population

2: There is no religious sub group identifier in the immunisation system

3: There is no legal and ethical approval to collect this information

4: Other, specify _____

Q.9. Please provide comments for all above questions, specifying question _____

IV.1.B. Possible barriers to obtain MMR vaccination

Q.10. Have any studies been undertaken to identify the barriers to vaccination in these communities?

1: Yes, 0: No, 99: Unknown

Q.10a. If yes, please specify studies undertaken and links to published reports: _____

Q.11. What barriers to vaccination for these communities have been identified? (either perceived or existing, data from studies or experience in dealing with the communities):

1: Social/cultural

2: Language barriers

3: Educational (literacy) issues

4: Other known barriers, specify _____

Q.12. Please provide comments for all above questions, specifying question _____

IV.1.C. Accessibility to MMR vaccination services

Q.13. Are MMR vaccination services easily accessible (i.e. no financial deterrent, convenient (time and place), population know how to enrol and obtain services easily) to these communities?

- 1: Yes, 2: For some of them, 0: No, 99: Unknown
- Q.13a. If no, specify in what way are they not easily accessible? _____
- Q.14. Is MMR vaccination for preschool and school children from these communities funded from the state budget?
- 1: Yes, 2: For some of them, 0: No, 99: Unknown
- Q.14a. If no or for some of them (some payment is required for vaccination of children) please specify payment required:
- 1: Full payment for all children
- 2: Full payment for some children
- 3: Partial payment for all children
- 4: Partial payment for some children
- Q.15. Are members of these communities entitled to register with a family doctor in the primary health care service?
- 1: Yes, 2: Some of them, 0: No, 99: Unknown
- Q.15a. If yes (or some of them), is registration for this population similar to that of the rest of the population?
- 1: Yes, 0: No, 99: Unknown
- Q.16. Are individuals from these communities entitled to have (receive) vaccination service in the primary health care service?
- 1: Yes, 2: Some of them, 0: No, 99: Unknown
- Q.16a. If yes, is this the same as vaccination service entitlements for the rest of the population?
- 1: Yes, 0: No, 99: Unknown
- Q.16b. If no, please explain: _____
- Q.17. Are members of these communities entitled to seek only emergency medical service?
- 1: Yes, 0: No, 99: Unknown
- Q.17a. If yes, are they similar to the rest of the population in seeking medical services
- 1: Yes, 0: No, 99: Unknown
- Q.18. Do you believe that there is an element of poor communication between health professionals and these communities in your country?
- 1: Yes, 0: No, 99: Unknown
- Q.19. Do these communities lack legal documentation which makes it difficult to access to health insurance or health services?
- 1: Yes, 2: Some of them, 0: No, 99: Unknown
- Q.20. Please provide comments for all above questions, specifying question _____

IV.1.D. Knowledge about MMR vaccination programme

- Q.21. In comparison to the average population, what is the average living standard of this community?
- 1: The same, 2: High living standard, 3: Lower living standard, 99: Unknown
- Q.22. In comparison to the average population, what is the average level of education of this group?
- 1: The same 2: Lower, 3: Higher, 99: Unknown
- Q.23. Do individuals from these communities lack access to health information (either materials or modes of obtaining information)?
- 1: Yes, 2: Some of them, 0: No, 99: Unknown
- Q.24. Can children from these communities be easily contacted and made aware that they should attend for vaccination?
- 1: Yes, easily; 2: Sometimes; 3: No, not easily; 0: No, not at all; 99: Unknown
- Q24a. If yes, how are they contacted? (tick all that apply)
- 1: By letter (from GP or immunisation service)
- 2: By phone (from GP or immunisation service)
- 3: By personal home visit (from GP or immunisation service)
- 4: If other, specify (e.g. Red Cross) _____

Q24b. If no for any of the above, for which of the following reasons is contact difficult? (tick all that apply)

- 1: Lack permanent address in your country?
- 2: Lack phones
- 3: Refuse contact with immunisation services even if reached
- 4: If other, specify _____

Q.25. Please provide comments for all above questions, specifying question _____

IV.1.E. Activities undertaken to address differences in MMR vaccine

Q.26. Does your country have a special strategy (plans) to reach this population on a regular basis for MMR vaccinations?

- 1: Yes, 0: No, 99: Unknown

Q.27. Does your country have special information materials routinely available for this community (e.g. vaccination leaflets in their language or special advertisements)?

- 1: Yes, 0: No, 99: Unknown

Q.28. Has your country had a communication campaign specifically targeted at these communities?

- 1: Yes, 0: No, 99: Unknown

Q.29. Are there special clinical staff (and/or peer educators) trained to work with this community?

- 1: Yes, 0: No, 99: Unknown

Q.30. Has your country organised special vaccination clinics in recent (4-5 years) years for these communities?

- 1: Yes nationally, 2: Yes regionally, 3: Yes, regionally and nationally, 0: No, 99: Unknown

Q.30a. If yes, please specify which of the following:

- 1: Special school clinics
- 2: Special university clinics
- 3: Special community clinics
- 4: Work places
- 5: Special community teams going out to other sites (e.g. other group gatherings)
- 6: If yes, specify other sites _____

Q.30b. If yes, were these efforts successful?

- 1: Yes, 2: No, 99: Unknown

Q.30c. If yes, what activities in particular were successful?

Specify _____

Q.30d. If no, why do you think they were unsuccessful?

Specify _____

Q.31. Have any incentives been used to increase vaccination coverage in this community?

- 1: Yes, 2: No, 99: Unknown

Q.31a. If yes, please indicate which of the following were used:

- 1: Financial incentive (governmental social welfare or of child welfare payment)

Specify type _____

- 2: Gift (specify type)

Specify type _____

- 3: Vaccination allows eligibility to attend venue, education centre, course, workplace

Specify type _____

- 4: Other, specify _____

Q.32. Please provide comments for all above questions, specifying question _____

IV.2. ETHNIC GROUPS

IV.2.A. General description of ethnic subgroups and vaccine uptake among them

- Q.1. Are there communities in your country that are highly mobile and transient, with a nomadic life style?
1: Yes, 0: No, 99: Unknown
- Q.1a. If yes, please identify that group(s) by name _____
- Q.2. How big is this community (ies)? (please provide approximate estimation if it is available) _____
 Estimation of this population is unknown
- Q.3. In your country do these communities refrain from vaccination?
1: Yes, 0: No, 99: Unknown
- Q.4. Does this community move frequently within the country?
1: Yes, 2: Some of them, 0: No, 99: Unknown
- Q.5. Does this community move frequently outside the country?
1: Yes, 2: Some of them, 0: No, 99: Unknown
- Q.6. Does this population usually settle in one place?
1: Yes, 2: Some of them, 0: No, 99: Unknown
- Q.7. Are these communities located in specific regions or sub-regions of the country?
1: Yes, 0: No, 99: Unknown
- Q.8. Are children of these communities attending school regularly?
1: Yes, 2: Some of them, 0: No, 99: Unknown
- Q.9. Do these communities have mass gatherings that can facilitate the spread of measles, mumps, and rubella?
1: Yes, 0: No, 99: Unknown
- Q.9a. If yes, specify type of mass gatherings that occur _____
- Q.10. Has your country had epidemics/outbreaks (Appendix 1: definition of outbreak/epidemic) among this population of measles, mumps, and rubella for recent 5 years?
1: Yes, 0: No, 99: Unknown
- Q.10a. If yes, please specify disease and provide links to published reports: _____
- Q.11. Can you estimate MMR vaccine coverage among this group?
1: Yes, 0: No, 99: Unknown
- Q.11a. If yes, please specify which method was used to estimate vaccine uptake for this group(s) vaccination coverage (%), year of data collection and age at which vaccination coverage is measured:
 Measured using administrative methods
- Dose 1*
Age (specify months or years) _____
Vaccination coverage (%) _____
Year _____
- Dose 2*
Age (specify months or years) _____
Vaccination coverage (%) _____
Year _____
- Catch up dose*
Age (specify months or years) _____
Vaccination coverage (%) _____
Year _____
- No catch up vaccination
- Catch up dose*
Age (specify months or years) _____
Vaccination coverage (%) _____
Year _____

No catch up vaccination

Measured using survey methods

Dose 1

Age (specify months or years) _____

Vaccination coverage (%) _____

Year _____

Dose 2

Age (specify months or years) _____

Vaccination coverage (%) _____

Year _____

Catch up dose

Age (specify months or years) _____

Vaccination coverage (%) _____

Year _____

No catch up vaccination

Catch up dose

Age (specify months or years) _____

Vaccination coverage (%) _____

Year _____

No catch up vaccination

Q.12. If you are unable to provide coverage data for this group, please specify the reasons why you are unable to do so? (Drop menu)

1: This population is included in the vaccine uptake estimate of the general population

2: There is no ethnic sub group identifier in the immunisation system

3: There is no legal and ethical approval to collect this information

4: Other, specify _____

Q.13. Please provide comments for all above questions, specifying question _____

IV.2.B. Possible barriers to obtain MMR vaccination

Q.14. Have any studies been undertaken to identify the barriers to vaccination in these communities?

1: Yes, 0: No, 99: Unknown

Q.14a. If yes, please specify studies undertaken and links to published reports: _____

Q.15. What barriers to vaccination for these communities have been identified? (either perceived or existing, data from studies or experience in dealing with the communities):

1: Social/cultural

2: Language barriers

3: Educational (literacy) issues

4: Other known barriers, specify _____

Q.16. Please provide comments for all above questions, specifying question _____

IV.2.C. Accessibility to MMR vaccination services

Q. 17. Are MMR vaccination services easily accessible (i.e. no financial deterrent, convenient (time and place), population know how to enrol and obtain services easily) to these communities?

1: Yes, 2: For some of them, 0: No, 99: Unknown

Q.17a. If no, specify in what way are they not easily accessible? _____

Q.18. Is MMR vaccination for preschool and school children from these communities funded from the state budget?

- 1: Yes, 2: For some of them, 0: No, 99: Unknown
- Q.18a. If no or for some of them (some payment is required for vaccination of children) please specify payment required and conditions:
- 1: Full payment for all children
 2: Full payment for some children
 3: Partial payment for all children
 4: Partial payment for some children
- Q.19. Are members of these communities entitled to register with a family doctor in the primary health care service?
- 1: Yes, 2: For some of them, 0: No, 99: Unknown
- Q.19a. If yes (or some of them), is registration for this population similar to that of the rest of the population?
- 1: Yes, 0: No, 99: Unknown
- Q.20. Are individuals from these communities entitled to have (receive) vaccination service in the primary health care service?
- 1: Yes, 2: Some of them, 0: No, 99: Unknown
- Q.20a. If yes, is this the same as vaccination service entitlements for the rest of the population?
- 1: Yes, 0: No, 99: Unknown
- Q.20b. If no, please explain: _____
- Q. 21. Are members of these communities entitled to seek only emergency medical service?
- 1: Yes, 0: No, 99: Unknown
- Q.21a. If yes, are they similar to the rest of the population in seeking medical services?
- 1: Yes, 0: No, 99: Unknown
- Q. 22. Do you believe that there is an element of poor communication between health professionals and these communities in your country?
- 1: Yes, 0: No, 99: Unknown
- Q.23. Do these communities lack legal documentation which makes it difficult to access to health insurance or health services?
- 1: Yes, 2: Some of them, 0: No, 99: Unknown
- Q. 24. Do these communities lack of permanent address?
- 1: Yes, 2: Some of them, 0: No, 99: Unknown
- Q.25. Please provide comments for all above questions, specifying question _____

IV.2.D. Knowledge about MMR vaccination programme

- Q. 26. In comparison to the average population, what is the average living standard of this community?
- 1: The same, 2: High living standard, 3: Lower living standard, 99: Unknown
- Q.27. In comparison to the average population, what is the average level of education of this group?
- 1: The same Lower, 2: Higher, 99: Unknown
- Q.28. Do individuals from these communities lack access to health information (either materials or modes of obtaining information)?
- 1: Yes, 2: Some of them, 0: No, 99: Unknown
- Q.29. Can children from these communities be easily contacted and made aware that they should attend for vaccination?
- 1: Yes, easily; 2: Sometimes; 3: No, not easily; 0: No, not at all; 99: Unknown
- Q.29a. If yes, how are they contacted? (tick all that apply)
- 1: By letter (from GP or immunisation service)
 2: By phone (from GP or immunisation service)
 3: By personal home visit (from GP or immunisation service)
 4: If other, specify (e.g. Red Cross) _____
- Q.29b. If no for any of the above, for which of the following reasons is contact difficult? (tick all that apply)

- 1: Lack permanent address in your country?
- 2: Lack phones
- 3: Refuse contact with immunisation services even if reached
- 4: Other, specify _____

Q.30. Please provide comments for all above questions, specifying question _____

IV.2.E. Activities undertaken to address differences in MMR vaccine

Q.31. Does your country have a special strategy (plans) to reach this population on a regular basis for MMR vaccinations?

- 1: Yes, 0: No, 99: Unknown

Q.32. Does your country have special information materials routinely available for this community (e.g. vaccination leaflets in their language or special advertisements)?

- 1: Yes, 0: No, 99: Unknown

Q.33. Has your country had a communication campaign specifically targeted at these communities?

- 1: Yes, 0: No, 99: Unknown

Q.34. Are there special clinical staff (and/or peer educators) trained to work with this community?

- 1: Yes, 0: No, 99: Unknown

Q.35. Has your country organised special vaccination clinics in recent (4-5 years) years for these communities?

- 1: Yes nationally, 2: Yes regionally, 3: Yes, regionally and nationally, 0: No, 99: Unknown

Q.35a. If yes, please specify which of the following:

- 1: Special school clinics
- 2: Special university clinics
- 3: Special community clinics
- 4: Work places
- 5: Special community teams going out to other sites (e.g. other group gatherings)
- 6: If yes, specify other sites _____

Q.35b. If yes, were these efforts successful?

- 1: Yes, 0: No, 99: Unknown

Q.35c. If yes, what activities in particular were successful?

Specify _____

Q.35d. If no, why do you think they were unsuccessful?

Specify _____

Q.36. Have any incentives been used to increase vaccination coverage in this community?

- 1: Yes, 0: No, 99: Unknown

Q.36a. If yes, please indicate which of the following were used:

- 1: Financial incentive (governmental social welfare or of child welfare payment)
Specify type _____
- 2: Gift (specify type)
- 3: Vaccination allows eligibility to attend venue, education centre, course, workplace
Specify type _____
- 4: If other, specify _____

Q.37. Please provide comments for all above questions, specifying question _____

IV.3. ANTHROPOSOPHIC

IV.3.A. General description of anthroposophic subgroup and vaccine uptake among them

Q.1. Do you have anthroposophic communities (Appendix 2. Definition of anthroposophy) in your country that is not taking vaccinations?

- 1: Yes, 0: No, 99: Unknown

Q.1a. If yes, please identify that group(s) by name _____

Q.2. How big is that community? (please provide approximate estimation if it is available) _____

Estimation of this population is unknown

Q.3. Are they located in specific regions or sub-regions of your country?

1: Yes, 0: No, 99: Unknown

Q.3a. If yes, please specify _____

Q.3b. If no, are they resident uniformly across the country?

1: Yes, 0: No, 99: Unknown

Q.4. Do children of these communities have separate (special) schools/creches (kindergartens) from other children in the country?

1: Yes, 0: No, 99: Unknown

Q. 5. Do these communities have mass gatherings that can facilitate the spread of measles, mumps, and rubella?

1: Yes, 0: No, 99: Unknown

Q.5a. If yes, specify type of mass gatherings that occur _____

Q.6. Has your country had epidemics/outbreaks (Appendix 1: definition of outbreak/epidemic) among this population of measles, mumps, and rubella for recent 5 years?

1: Yes, 0: No, 99: Unknown

Q.6a. If yes, please specify disease and links to published reports: _____

Q.7. Is there an estimate of MMR vaccine coverage among these communities in your country?

1: Yes, 0: No, 99: Unknown

Q.7a. If yes, please specify which method was used to estimate vaccine uptake for this group in your country, Vaccination coverage (%) uptake and year of data collection, and age measured:

Measured using administrative methods

Dose 1

Age (specify months or years) _____

Vaccination Coverage (%) _____

Year _____

Dose 2

Age (specify months or years) _____

Vaccination coverage (%) _____

Year _____

Catch up dose

Age (specify months or years) _____

Vaccination coverage (%) _____

Year _____

No catch up vaccination

Catch up dose

Age (specify months or years) _____

Vaccination coverage (%) _____

Year _____

No catch up vaccination

Measured using survey methods

Dose 1

Age (specify months and/or years) _____

Vaccination coverage (%) _____

Year _____

Dose 2

Age (specify months or years) _____

Vaccination coverage (%) _____

Year _____

Catch up dose

Age (specify months or years) _____

Vaccination coverage (%) _____

Year _____

No catch up vaccination

Catch up dose

Age (specify months or years) _____

Vaccination coverage (%) _____

Year _____

No catch up vaccination

Q.8. If you do not have data on uptake in this group, please specify why it is not possible to estimate vaccine uptake among them? (Drop menu)

1: This population is included in the general population vaccine uptake estimate

2: There is no anthroposophic sub group identifier in the immunisation system

3: There is no legal and ethical approval to collect this information

4: Other,specify _____

Q.9. Please provide comments for all above questions, specifying question _____

IV.3.B. Possible barriers to obtain MMR vaccination

Q.10. Have any studies been undertaken to identify the barriers to vaccination in these communities?

1: Yes, 0: No, 99: Unknown

Q.10a. If yes, please specify studies undertaken and links to published reports: _____

Q.11. What barriers to vaccination for these communities have been identified? (either perceived or existing, data from studies or experience in dealing with the communities):

1: Social/cultural

2: Other known barriers, specify _____

Q.12. Please provide comments for all above questions, specifying question _____

IV.3.C. Accessibility to MMR vaccination services

Q.13. Are MMR vaccination services easily accessible (i.e. no financial deterrent, convenient (time and place), population know how to enrol and obtain services easily) to these communities?

1: Yes, 2: For some of them, 0: No, 99: Unknown

Q.13a. If no, specify in what way are they not easily accessible? _____

Q.14. Is MMR vaccination for preschool and school children from these communities funded from the state budget?

1: Yes, 2: For some of them, 0: No, 99: Unknown

Q.14a. If no or for some of them (some payment is required for vaccination of children) please specify payment required and conditions:

1: Full payment for all children

2: Full payment for some children

3: Partial payment for all children

4: Partial payment for some children

Q.15. Are members of these communities entitled to register with a family doctor in the primary health care service?

1: Yes, 2: Some of them, 0: No, 99: Unknown

- Q.15a. If yes (or some of them), is registration for this population similar to that of the rest of the population?
1: Yes, 0: No, 99: Unknown
- Q.16. Are individuals from these communities entitled to have (receive) vaccination service in the primary health care service?
1: Yes, 2: Some of them, 0: No, 99: Unknown
- Q.16a. If yes, is this the same as vaccination service entitlements for the rest of the population?
1: Yes, 0: No, 99: Unknown
- Q.16b. If no, please explain: _____
- Q. 17. Are members of these communities entitled to seek only emergency medical service?
1: Yes, 0: No, 99: Unknown
- Q.17a. If yes, are they similar to the rest of the population in seeking medical services
1: Yes, 0: No, 99: Unknown
- Q. 18. Do you believe that there is an element of poor communication between health professionals and these communities in your country?
1: Yes, 0: No, 99: Unknown
- Q. 19. Do these communities lack legal documentation which makes it difficult to access to health insurance or health services?
1: Yes, 2: Some of them, 0: No, 99: Unknown
- Q. 20. Do any of the following issues apply to this population group:
1: Lack access to health information in your country (either materials or modes)
2: Lack of legal documentation making it difficult to access to health insurance or health services?
- Q. 21. Please provide comments for all above questions, specifying question _____
- IV.3.D. Knowledge about MMR vaccination programme***
- Q.22. In comparison to the average population, what is the average living standard of this community?
1: The same, 2: High living standard, 3: Lower living standard, 99: Unknown
- Q.23. In comparison to the average population, what is the average level of education of this group?
1: The same, 2: High living standard, 3: Lower living standard, 99: Unknown
- Q.24. Do individuals from these communities lack access to health information (either materials or modes of obtaining information)?
1: Yes, 2: Some of them, 0: No, 99: Unknown
- Q. 25. Do these communities have language barriers that may impair their ability to access health information?
1: Yes, 2: Some of them, 0: No, 99: Unknown
- Q. 26. Can children from these communities be easily contacted and made aware that they should attend for vaccination?
1: Yes, easily; 2: Sometimes; 3: No, not easily; 0: No, not at all; 99: Unknown
- Q.26a. If yes, how are they contacted? (tick all that apply)
1: By letter (from GP or immunisation service)
2: By phone (from GP or immunisation service)
3: By personal home visit (from GP or immunisation service)
4: Other, specify (e.g. Red Cross) _____
- Q.26b. If no for any of the above, for which of the following reasons is contact difficult? (tick all that apply)
1: Lack permanent address in your country?
2: Lack phones
3: Refuse contact with immunisation services even if reached
4: Other, specify _____
- Q.27. Please provide comments for all above questions, specifying question _____

IV.3.E. Activities undertaken to address differences in MMR vaccine

- Q.28. Does your country have a special strategy (plans) to reach this population on a regular basis for MMR vaccinations?
1: Yes, 0: No, 99: Unknown
- Q.29. Does your country have special information materials routinely available for this community (e.g. vaccination leaflets in their language or special advertisements)?
1: Yes, 0: No, 99: Unknown
- Q. 30. Has your country had a communication campaign specifically targeted at these communities?
1: Yes, 0: No, 99: Unknown
- Q.31. Are there special clinical staff (and/or peer educators) trained to work with this community?
1: Yes, 0: No, 99: Unknown
- Q. 32. Has your country organised special vaccination clinics in recent (4-5 years) years for these communities?
1: Yes nationally, 2; Yes regionally, 3; Yes, regionally and nationally, 0: No, 99: Unknown
- Q.33a. If yes, please specify which of the following:
1: Special school clinics
2: Special university clinics
3: Special community clinics
4: Work places
5: Special community teams going out to other sites (e.g. other group gatherings)
6: If yes, specify other sites _____
- Q.33b. If yes, were these efforts successful?
1: Yes, 0: No, 99: Unknown
- Q.33c. If yes, what activities in particular were successful?
Specify _____
- Q.33d. If no, why do you think they were unsuccessful?
Specify _____
- Q. 34. Have any incentives been used to increase vaccination coverage in this community?
1: Yes, 0: No, 99: Unknown
- Q.34a. If yes, please indicate which of the following were used:
1: Financial incentive (governmental social welfare or of child welfare payment)
Specify type _____
2: Gift (specify type)
3: Vaccination allows eligibility to attend venue, education centre, course, workplace
Specify type _____
If other, specify _____
- Q. 35. Please provide comments for all above questions, specifying question _____

IV.4. ECONOMIC MIGRANTS

IV.4.A. General description of economic migrants' subgroup and vaccine uptake among them

- Q.1. Do you have economic migrant communities in your country that refrain from MMR vaccination?
1: Yes, 0: No, 99: Unknown
- Q.2. Is there an estimate of MMR vaccine coverage among this group in your country?
1: Yes, 0: No, 99: Unknown
- Q.2a. If yes, please specify which method was used to estimate vaccine uptake for this group(s) vaccination coverage (%), year of data collection and age at which vaccination coverage is measured:

 Measured using administrative methods
Dose 1
Age (specify months or years) _____

Coverage (%) _____

Year _____

Dose 2

Age (specify months or years) _____

Vaccination coverage (%) _____

Year _____

Catch up dose

Age (specify months or years) _____

Vaccination coverage (%) _____

Year _____

No catch up vaccination

Catch up dose

Age (specify months or years) _____

Vaccination coverage (%) _____

Year _____

No catch up vaccination

Measured using survey methods

Dose 1

Age (specify months or years) _____

Vaccination coverage (%) _____

Year _____

Dose 2

Age (specify months or years) _____

Vaccination coverage (%) _____

Year _____

Catch up dose

Age (specify months or years) _____

Vaccination coverage (%) _____

Year _____

No catch up vaccination

Catch up dose

Age (specify months or years) _____

Vaccination coverage (%) _____

Year _____

No catch up vaccination

Q.3. If you do not have coverage data in this group, please specify why you are unable to estimate vaccine coverage in this group (Drop menu) (tick all that apply)

1: This population is included in the vaccine uptake estimate of the general population

2: There is no religious sub group identifier in the immunisation system

3: There is no legal and ethical approval to collect this information

4: Other, specify _____

Q.4. Please provide comments for all above questions, specifying question _____

IV.4.B. Possible barriers to obtain MMR vaccination

Q.5. Have any studies been undertaken to identify the barriers to vaccination in these communities?

1: Yes, 0: No, 99: Unknown

- Q.5a. If yes, please specify studies undertaken and links to published reports: _____
- Q.6. What barriers to vaccination for these communities have been identified? (either perceived or existing, data from studies or experience in dealing with the communities):
- 1: Social/cultural
 - 2: Language barriers
 - 3: Educational (literacy) issues
 - 4: Other known barriers, specify _____
- Q.7. Please provide comments for all above questions, specifying question _____

IV.4.C. Accessibility to MMR vaccination services

- Q.8. Are MMR vaccination services easily accessible (i.e. no financial deterrent, convenient (time and place), population know how to enrol and obtain services easily) to these communities?
- 1: Yes, 2: For some of them, 0: No, 99: Unknown
- Q.8a. If no, specify in what way are they not easily accessible? _____
- Q.9. Is MMR vaccination for preschool and school children from these communities funded from the state budget?
- 1: Yes, 2: For some of them, 0: No, 99: Unknown
- Q.9a. If no or for some of them (some payment is required for vaccination of children) please specify payment required:
- 1: Full payment for all children
 - 2: Full payment for some children
 - 3: Partial payment for all children
 - 4: Partial payment for some children
- Q.10. Are members of these communities entitled to register with a family doctor in the primary health care service?
- 1: Yes, 2: Some of them, 0: No, 99: Unknown
- Q.10a. If yes (or some of them), is registration for this population similar to that of the rest of the population?
- 1: Yes, 0: No, 99: Unknown
- Q.11. Are individuals from these communities entitled to have (receive) vaccination service in the primary health care service?
- 1: Yes, 2: Some of them, 0: No, 99: Unknown
- Q.11a. If yes, is this the same as vaccination service entitlements for the rest of the population?
- 1: Yes, 0: No, 99: Unknown
- Q.11b. If no, please explain: _____
- Q.12. Are members of these communities entitled to seek only emergency medical service?
- 1: Yes, 0: No, 99: Unknown
- Q.12a. If yes, are they similar to the rest of the population in seeking medical services
- 1: Yes, 0: No, 99: Unknown
- Q.13. Do you believe that there is an element of poor communication between health professionals and these communities in your country?
- 1: Yes, 0: No, 99: Unknown
- Q.14. Do these communities lack legal documentation which makes it difficult to access to health insurance or health services?
- 1: Yes, 2: Some of them, 0: No, 99: Unknown
- Q.15. Please provide comments for all above questions, specifying question _____

IV.4.D. Knowledge about MMR vaccination programme

- Q.16. In comparison to the average population, what is the average living standard of this community?
- 1: The same, 2: High living standard, 3: Lower living standard, 99: Unknown
- Q.17. In comparison to the average population, what is the average level of education of this group?

- 1: The same 2: Lower, 3: Higher, 99: Unknown
- Q.18. Do individuals from these communities lack access to health information (either materials or modes of obtaining information)?
1: Yes, 2: Some of them, 0: No, 99: Unknown
- Q.19. Can children from these communities be easily contacted and made aware that they should attend for vaccination?
1: Yes, easily; 2: Sometimes; 3: No, not easily; 0: No, not at all; 99: Unknown
- Q.19a. If yes, how are they contacted? (tick all that apply)
1: By letter (from GP or immunisation service)
2: By phone (from GP or immunisation service)
3: By personal home visit (from GP or immunisation service)
4: If other, specify (e.g. Red Cross) _____
- Q.19b. If no for any of the above, for which of the following reasons is contact difficult? (tick all that apply)
1: Lack permanent address in your country
2: Lack phones
3: Refuse contact with immunisation services even if reached
4: If other, specify _____
- Q.20. Please provide comments for all above questions, specifying question _____

IV.4.E. Activities undertaken to address differences in MMR vaccine

- Q.21. Does your country have a special strategy (plans) to reach this population on a regular basis for MMR vaccinations?
1: Yes, 0: No, 99: Unknown
- Q.22. Does your country have special information materials routinely available for this community (e.g. vaccination leaflets in their language or special advertisements)?
1: Yes, 0: No, 99: Unknown
- Q.23. Has your country had a communication campaign specifically targeted at these communities?
1: Yes, 0: No, 99: Unknown
- Q.34. Are there special clinical staff (and/or peer educators) trained to work with this community?
1: Yes, 0: No, 99: Unknown
- Q.25. Has your country organised special vaccination clinics in recent (4-5 years) years for these communities?
1: Yes nationally, 2: Yes regionally, 3: Yes, regionally and nationally, 0: No, 99: Unknown
- Q.25a. If yes, please specify which of the following:
1: Special school clinics
2: Special university clinics
3: Special community clinics
4: Work places
5: Special community teams going out to other sites (e.g. other group gatherings)
6: If yes, specify other sites _____
- Q.25b. If yes, were these efforts successful?
1: Yes, 2: No, 99: Unknown
- Q.25c. If yes, what activities in particular were successful?
Specify _____
- Q.25d. If no, why do you think they were unsuccessful?
Specify _____
- Q.26. Have any incentives been used to increase vaccination coverage in this community?
1: Yes, 2: No, 99: Unknown
- Q.26a. If yes, please indicate which of the following were used:
1: Financial incentive (governmental social welfare or of child welfare payment)

Specify type _____

2: Gift (specify type)

Specify type _____

3: Vaccination allows eligibility to attend venue, education centre, course, workplace

Specify type _____

4: Other, specify _____

Q.27. Please provide comments for all above questions, specifying question _____

IV.5. HEALTH CARE WORKERS (HCWs)

Q.1. Is MMR vaccination recommended for HCWs?

1: Yes, for all, 2: Yes for some, 0: No recommendation, 99: Unknown

Q.1a. If yes for some, please specify staff whom MMR vaccination is recommended?

1: Staff involved in direct patient care (doctors, dentists, midwives, nurses, ambulance staff, occupational therapists, physiotherapists, radiographers, students and trainees)

2: Non-clinical staff (receptionists, ward clerks, porters, cleaners)

3: Laboratory staff

4: Pathology staff

5: Other, specify _____

Q.2. Has your country had epidemics/outbreaks (Appendix 1: definition of outbreak/epidemic) among this population of measles, mumps, and rubella for recent 5 years?

1: Yes, 0: No, 99: Unknown

Q.2a. If yes, please specify disease and provide links to published reports: _____

Q.3. Is there an estimate of MMR vaccine coverage among HCWs in your country?

1: Yes, 0: No, 99: Unknown

Q.3a. If yes, please specify which method was used to estimate MMR vaccine uptake for this group(s) vaccination coverage (%) and year of data collection at which vaccination coverage is measured:

Measured using administrative methods

Coverage (%) _____

Year _____

Measured using survey methods

Vaccination coverage (%) _____

Year _____

Q.4. Have any studies been undertaken to evaluate determinants of vaccination coverage in these groups?

1: Yes, 0: No, 99: Unknown

Q.5. If yes, please specify studies undertaken and links to published reports: _____

Q.6. If vaccination coverage is low among HCWs have any activities undertaken in order to increase it?

1: Yes, 0: No, 99: Unknown

Q.7. Have any activities been particularly successful?

1: Yes, 0: No, 99: Unknown

Q.7a. If yes, please specify what activities were particularly successful? _____

IV.6. SPECIFIC AGE GROUPS

Q.1. Do you have a problem with MMR low coverage in any specific age groups?

1: Yes, 0: No, 99: Unknown

Q.1a. If yes, what age groups _____

Q.2. Have studies been undertaken to evaluate determinants of vaccination coverage in these groups?

1: Yes, 0: No, 99: Unknown

Q.2a. Please specify studies undertaken and links to published reports: _____

Q.3. What activities have been implemented to improve vaccination coverage in these groups?

Please specify _____

Q. 4. What activities were particularly successful? Please specify _____

Appendix 1. Definition of outbreak/epidemic:

Definition of epidemic/outbreak: The occurrence of more cases of disease than expected in a given area or among a specific group of people over a particular period of time (CDC definition of for OB investigation).

Appendix 2. Definion of anthroposophy

Anthroposophy: Knowledge of the nature of man. A spiritual and mystical doctrine that grew out of theosophy and derives mainly from the philosophy of Rudolph Steiner, Austrian social philosopher (1861-1925). (Webster, 3d ed) Children attending Steiner schools often have an anthroposophic (holistic) lifestyle in which some immunizations are avoided or postponed.