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Executive summary

All countries in the European Region have committed to eliminating measles and rubella by 2015. To evaluate progress toward this goal, the 2nd meeting of the European Regional Verification Commission for Measles and Rubella Elimination (RVC) was held from 28 to 30 October 2013 in Copenhagen, Denmark. The RVC reviewed information submitted by the national verification committees for measles and rubella elimination (NVC) from the 34 countries that submitted reports, and decided on the status of interruption of measles and rubella as of the end of 2012. The RVC concluded that based on reports submitted and as of the end of 2012, endemic measles transmission had been interrupted in 16 countries and endemic rubella transmission had been interrupted in 19 countries. However, in a number of countries where measles and/or rubella endemic transmission has been interrupted, there is risk of re-established endemic transmission mainly due to significant immunity gaps in the population (6 countries both for measles and rubella). In addition, in a number of countries the RVC was not able to verify interruption of measles (9 countries) or rubella (7 countries) transmission mainly due to insufficient or inadequate surveillance data to review. Improvements to the annual status report (ASR) submission and review process and feedback to countries was discussed. The RVC urged those countries still lacking NVCs to establish them as a matter of urgency, and to compile and submit their data annually.

Abbreviations and acronyms

ASR	Annual Status Report
CRS	congenital rubella syndrome
ECDC	European Centre for Disease Prevention and Control
EIDSS	electronic integrated disease surveillance system
EIW	European Immunization Week
GVAP	Global Vaccine Action Plan
MR	measles and rubella (vaccine)
MMR	measles, mumps and rubella (vaccine)
NITAG	national immunization technical advisory group
NVC	National Verification Committee for Measles and Rubella Elimination
RVC	Regional Verification Commission for Measles and Rubella Elimination
SAGE	Strategic Advisory Group of Experts on Immunization
SIA	supplementary immunization activity
UNICEF	United Nations Children's Fund

Background

The Regional Verification Commission for Measles and Rubella Elimination (RVC) was established by the World Health Organization Regional Office for Europe (Regional Office) in 2012, as an independent-expert body with the mission to evaluate the documentation submitted by national verification committees (NVC) of Member States, in order to verify the elimination of measles and rubella at the regional level. The WHO Regional Office serves as the secretariat to the RVC.

At the sixtieth session of the WHO Regional Committee for Europe the ministries of health of all Member States endorsed resolution EUR/RC60/R12, renewing their commitment to measles and rubella elimination and prevention of congenital rubella syndrome in the WHO European Region by 2015. Establishing of national verification committees and reporting on achieved progress in measles and rubella elimination are activities incorporated in the commitment. The RVC has recommended establishment of NVCs in all Member States and approved a standard format for annual status reports, developed by the WHO Secretariat. These reports include information on measles and rubella epidemiology, molecular epidemiology, the analysis of vaccinated population cohorts and immunization programme performance, the quality of surveillance, and the sustainability of the country's national immunization programme.

The review and evaluation of annual national reports will continue for at least three years after the RVC confirms that, according to established criteria, endemic measles and rubella transmission have been interrupted in all Member States of the Region. Only then can Regional elimination be declared.

Introduction

The second meeting of the European Regional Verification Commission for Measles and Rubella elimination (RVC) was held from 28 to 30 October 2013 in Copenhagen Denmark. Dr Dina Pfeifer, Programme Manager of the Vaccine-preventable Diseases and Immunization programme, Division of Communicable Diseases, welcomed participants on behalf of the World Health Organization Regional Office for Europe (WHO).

Following WHO presentations on current global and regional activities on measles and rubella elimination, RVC members reviewed the annual status reports (ASRs) received from 34 national verification committees (NVC), assessed the status of measles and rubella transmission in the Region and discussed activities and further development of the verification process in the Region.

Scope and purpose of the meeting

In line with terms of reference, the RVC met for the first time to review the documentation submitted by those NVCs that have been established by Member States to date, within a framework and in accordance with procedures for documenting and verifying the achievement of elimination in the WHO European Region. Member States were requested to submit their first annual status reports by 31 July 2013.

The objectives of the meeting were:

- to evaluate measles and rubella annual status reports submitted by Member States of the WHO European Region for 2010–2012;
- to identify Member States that are in the high-risk group for not reaching elimination based on the current status of measles and rubella elimination;
- to brief the RVC on the *Package for accelerated action towards measles and rubella elimination* in the WHO European Region for the years 2013–2015;
- to review working procedures of the RVC and to discuss a plan of activities for 2014.

The expected outcome of the meeting was a consensus on the status of measles and rubella elimination in Member States of the WHO European Region in 2012.

Status of measles and rubella elimination: global and European Region update

Global update

Recognizing results in reduction of the global measles mortality and elimination targets in the regions, the 63rd World Health Assembly (WHA) recommended proceeding to the eventual global eradication of measles, conditioned on achieving measurable progress towards reaching the 2015 global targets (milestones) and the three regional measles elimination goals:

- exceed 90% coverage with the first dose of measles-containing vaccine nationally and exceed 80% vaccination coverage in every district or equivalent administrative unit;
- reduce annual measles incidence to less than five cases per million and maintain that level;
- reduce measles mortality by 95% or more in comparison with 2000 estimates.

The Strategic Advisory Group of Experts (SAGE) on Immunization created a framework for verifying elimination of measles and rubella at the global level. There are five lines of evidence to consider when making judgement on whether measles or rubella has been eliminated, all of which should be considered in the process:

- epidemiology of measles, rubella and congenital rubella syndrome (CRS);
- measles and rubella immunity levels of multiple population cohorts;
- quality of surveillance systems;
- sustainability of the national immunization programme;
- molecular epidemiology.

At the regional level, all six WHO regions have established target dates for measles eradication, the most recent being the South-East Asia Region in September 2013 with a target of 2020. Four regions aim to have eliminated measles by 2015 and two regions aim to have eliminated both measles and rubella by this date (Region of the Americas and the European Region).

The global incidence of measles over the past 12 years is trending downwards, with a 77% reduction since 2000. Estimated deaths from measles are also decreasing:

an 89% drop over the period 1985–2012 and a 78% drop between 2000 and 2012. Despite this, and based on the then-current trends and programme performance, the Strategic Advisory Group of Experts on Immunization (SAGE) stated in a November 2012 meeting that the 2015 targets in the European Region and Eastern Mediterranean Region would not be met; achievement of the African Region's 2020 goals is also in doubt. The Group urged stakeholders to raise the visibility of measles and rubella elimination, and ensure that it receives adequate priority and resources as a central component of GVAP.

European Region update

In 1999 WHO recommended a 2007 measles elimination target for the European Region, as part of the "Health for all in the 21st century" initiative. In 2005 a rubella elimination target of 2010 was added in the European Region. Those goals were not achieved, and in 2010 all countries in the European Region recommitted to eliminating measles and rubella, with the goal of measles and rubella elimination by 2015.

National immunization programmes have had a huge impact on measles and rubella incidence within the Region but challenges remain. During the period 2007–2009 fewer than 10 000 measles cases were reported each year, but from 2010 through 2013 this number has been increasing, dominated by Bulgaria (2010), France (2011), Ukraine (2012), and Georgia and Turkey (2013); the latter two countries had over 6000 measles cases each in 2013.

There have also been notable outbreaks in Azerbaijan, Germany, Italy, the Netherlands (in the so-called 'Bible belt'), Romania, Ukraine and the United Kingdom of Great Britain and Northern Ireland in 2013. In the latter, the outbreak was used by the national health system to advocate for measles mumps rubella (MMR) vaccinations, leading to the highest population coverage of measles-containing vaccine to date in that country.

During the 2010–2012 period, the number of Member States in the Region with >95% coverage with the first dose of measles-containing virus (MCV1) decreased, and the number of Member States that did not provide the second dose (MCV2) coverage data increased. Both of these are worrisome trends.

The data show that over half of confirmed measles cases in 2010–2013 were adolescents and young adults, aged 10 to 29 years. Most of these cases were either not immunized, incompletely immunized or there were no data about their immunization status. This figure, as well as the decreasing trends in routine immunization coverage, underscores the need for more data with which to assess populations of concern so that immunity gaps can be closed through targeted immunization activities and better outreach.

The number of rubella cases in the Region has declined: there were over 500 000 rubella cases in 2000, and this figure dropped to under 10 000 cases by 2011. During 2012–2013, cases were reported primarily in two countries: Poland and Romania. Romania's outbreak in 2012 included over 20 000 confirmed cases, and Poland's outbreak in 2013 included over 35 000 cases.

The WHO European Region's main activities in 2013/2014 are keeping measles and rubella elimination at the top of the Region's public health agenda. These include

high-level meetings with stakeholders, adopting the *Package for accelerated action*, advocating for Health 2020 (the Region's health policy framework), and translating the Global Vaccine Action Plan (GVAP) into a Regional Vaccine Action Plan (RVAP). See below for links.

Package for accelerated action 2013–2015

Six areas of activities have been launched to assist in meeting the 2015 target of measles and rubella elimination in the European Region, which constitute the *Package for accelerated actions for measles and rubella elimination*. The Package identifies priority areas in which the Regional Office will strengthen technical support to Member States as they seek to eliminate measles and rubella, and sets indicators and milestones by which progress resulting from the efforts of all stakeholders can be measured. The six priority areas are as follows.

- Vaccination and immunization system strengthening: National programmes to train, assess and provide technical assistance to Member States; creation of national immunization technical advisory groups (NITAGs); Guide to Tailoring Immunization Programmes (TIP).
- Surveillance: Case-based surveillance; lab and epidemiological data integration; vaccine safety manual and training.
- Outbreak prevention and response: Publication of Regional Guidelines for Outbreak Response (2013); coordination of response to outbreaks in the Region.
- Communications, information and advocacy: High-level advocacy of immunizations through European Immunization Week (EIW) and targeting of health care workers; strengthening online media platforms (e.g. blogs, Twitter, smartphone apps) and adapting new technologies; vaccine safety communication guidelines/training and assistance.
- Resource mobilization and partnerships: enhance cross-border collaboration between regions for outbreak response.
- Verification of measles and rubella elimination: Creation of national verification committees (NVCs), and review of the annual status reports (ASRs) from each NVC giving the RVC and WHO Secretariat an overview of the status of measles and rubella elimination in the Region.

Package for accelerated action 2013–2015[1]
Health 2010: a European policy framework supporting action across government and society for health and well-being[2]
Global Vaccine Action Plan (GVAP)[3]

Measles and rubella laboratory network: status and performance

The Regional Office coordinates a measles and rubella laboratory network (LabNet), which includes 71 laboratories: 1 with a global focus, 3 regional, and 47 national and 20 subnational. All laboratories follow the same standardized procedures; for each a strong quality assurance programme with annual proficiency testing and

[1] http://www.euro.who.int/__data/assets/pdf_file/0020/215480/PACKAGE-FOR-ACCELERATED-ACTION-20132015.pdf
[2] http://www.euro.who.int/en/health-topics/health-policy/health-2020-the-european-policy-for-health-and-well-being/publications/2013/health-2020-a-european-policy-framework-supporting-action-across-government-and-society-for-health-and-well-being
[3] http://www.who.int/immunization/global_vaccine_action_plan/GVAP_doc_2011_2020/en/

accreditation assessments is in place. Approximately 50 000 specimens were tested by LabNet in 2013. Serum samples are the most frequently investigated in the Region (78%), followed by oral fluid samples (14%).

Genotype data are one of the most important factors to consider when assessing measles and rubella status and confirming absence of transmission of endemic viruses. Rubella genotyping is more difficult to conduct, therefore much less genetic information is available for rubella viruses than for measles.

The global databases for measles and rubella nucleotide surveillance (MeaNS and RubeNS) provide genetic data and allow for trends in MR viruses circulation to be followed (for more information, see: http://www.who-measles.org and http://www.who-rubella.org or http://www.hpa-bioinformatics.org.uk/rubella).

One of the main challenges for MR surveillance is the need to better integrate laboratory data and epidemiological data, which is currently not as harmonized as desired. Strengthening this area with scaling-up of the MR lab data management system (MRLDMS) will allow Member States to have more comprehensive information from which to determine response and future activities, as well as give them the ability to better describe the status of endemic transmission in their respective countries.

Other challenges include:

- Seven countries (Bosnia and Herzegovina, Greece, Italy, Spain, Sweden, Tajikistan and the Former Yugoslav Republic of Macedonia) did not report laboratory data on measles and rubella in 2013.
- Genetic information is missing from some countries for measles viruses, whereas it is repeatedly poor or absent for rubella viruses.
- Financial support is requested for MR Labnet sustainability (equipment, supplies and training).

Status of the Annual Status Reports submission: introduction to the ASR review

At the time of the meeting 45 national verification committees (NVCs) had been established out of 53 Member States of the WHO European Region. 26 NVCs submitted annual status reports (ASR) about their measles and rubella elimination efforts by the deadline of 31 July 2013; an additional 10 ASRs were received by 2 October. Three reports (from Poland, Norway, and Sweden) were submitted from national public health institutions, not from an NVC, and therefore these reports were not considered by the RVC. Reports were discussed in alphabetical order. Completeness of the ASRs was generally adequate. Of note: 94% of countries reported a percentage of investigations for which the origin of infection was identified. Reporting about the percentage of laboratory investigations was similarly high.

Only 71% of ASRs provided all requested data about immunization coverage, i.e. data about the period under review (2010–2012) as well as historical data, which were expressly requested in the ASR template but not always provided (see section on conclusions for more discussion).

Reporting on the rate of discarded cases was the biggest challenge for countries: 25 countries (73%) included this information in their respective ASRs, but many of

these included errors (e.g. in some cases the country reported a percentage rather than a rate).

Very few countries followed the guidelines for calculation of surveillance indicators, especially for rate of discarded cases. It is not clear, however, whether this was due to the questions being unclear, misinterpretation of requirements, lack of coordination between the NVC and the National Immunization Programme, limited availability of required data or a combination of these reasons.

Table. Quality of measles and rubella surveillance in Member States (N= 34) presented against regional surveillance performance indicators and recommended targeted values (as presented in NVC reports)

Measles		2010	2011	2012	Rubella		2010	2011	2012
Timeliness of reporting	≥80%	19	19	23	Timeliness of reporting	≥80%	17	18	20
	<80%	6	8	7		<80%	7	6	4
	ND	9	7	4		ND	7	7	7
	NA	0	0	0		NA	3	3	3
Completeness of reporting	≥80%	25	29	30	Completeness of reporting	≥80%	22	24	23
	<80%	3	2	2		<80%	3	1	1
	ND	6	3	2		ND	6	6	7
	NA	0	0	0		NA	3	3	3
Rate of laboratory investigations	≥80%	22	25	27	Rate of laboratory investigations	≥80%	16	19	23
	<80%	8	7	5		<80%	9	6	4
	ND	3	2	2		ND	4	4	4
	NA	1	0	0		NA	5	5	3
Rate of discarded cases	≥2	4	13	5	Rate of discarded cases	≥2	2	3	5
	<2	14	5	14		<2	15	14	13
	ND	14	15	15		ND	13	13	13
	NA	2	1	0		NA	4	4	3
Chains of transmission/ outbreaks investigated for virus	≥80%	7	9	6	Chains of transmission/ outbreaks investigated for virus	≥80%	1	1	3
	<80%	5	5	8		<80%	2	3	3
	ND	11	9	11		ND	10	11	11
	NA	11	11	9		NA	21	19	17
Origin of infection identified	≥80%	13	18	19	Origin of infection identified	≥80%	9	7	9
	<80%	7	4	5		<80%	4	5	7
	ND	9	9	8		ND	9	10	10
	NA	5	3	2		NA	12	12	8
Timeliness of investigation	≥80%	18	20	20	Timeliness of investigation	≥80%	18	17	18
	<80%	2	1	3		<80%	0	1	0
	ND	13	13	11		ND	11	12	12
	NA	1	0	0		NA	5	4	4

ND = no data, NA=not applicable

Review of the Annual Status Reports: criteria and consideration

Each respective NVC provided its assessment of the country's measles and rubella elimination status in the ASR. Both the RVC and Secretariat acknowledged each

NVC for their work in answering the questions in the ASR, and the RVC independently reviewed the data submitted. In a number of cases the NVC's own assessment of its country's measles or rubella status did not match the RVC conclusion.

In line with the Framework for the verification process in the WHO European Region (see below for link), published in 2012, there were two criteria by which the RVC determined whether endemic transmission of measles and rubella had been interrupted within Member States.

- Is there an absence of endemic measles and rubella cases in a Member State in the presence of high-quality surveillance?
- Is there demonstrated protection of at least 95% of the population against measles and rubella?

If insufficient data were available to make a determination, the RVC categorized that report as "inconclusive" in regards to the interruption of endemic transmission of measles and/or rubella. The consistent application of this term – indeed all the terms related to the RVC's final statements – was discussed at length during the meeting. It was agreed that the terms to be used would be: "interrupted endemic transmission" instead of "elimination", "interrupted transmission at risk", "endemic transmission", "re-established endemic transmission" and "inconclusive".

The RVC used the following data from the ASR to determine measles and rubella elimination status:

- population immunity (MRCV1, MRCV2, SIA coverage, serosurvey data and other evidence);
- measles and rubella epidemiology (incidence per 1 000 000 population);
- molecular epidemiology of measles and rubella viruses;
- measles and rubella surveillance performance indicators in the period 2010–2012:
  - % timeliness and completeness of reporting
  - % of laboratory investigations
  - rate of discarded cases per 100 000 population
  - % of outbreaks investigated for genotype
  - % origin of infection identified
  - % timeliness of investigations
- sustainability of immunization programme in the period 2010–2012; and
- other evidence and programme activities in the period 2010–2012.

Initially, high population immunity was considered as one of the criteria to determine the interruption of measles and rubella transmission. However, after discussion between the Secretariat and the RVC, it was agreed to consider population immunity as an auxiliary component of the assessment of measles and rubella elimination in each country: if vaccination coverage among infants and young children was not shown to be $\geq$95%, this indicator itself would not be enough to justify a designation of endemic status of measles or rubella. It could indicate, however, that the country was at risk of re-established endemic

transmission of measles and rubella. A country was put in the category of "interrupted transmission of endemic measles (rubella), at risk" if this was the case.

Eliminating measles and rubella. Framework for the verification process in the WHO European Region[4]

Status of measles and rubella elimination, by country

The RVC reviewed and discussed the information submitted by the respective NVCs in their ASRs, and reached a conclusion on the status of measles and rubella elimination as of end 2012. The RVC's conclusions are summarized in the country-specific tables in Annex 1.

Conclusions and recommendations

The work undertaken by countries and the NVCs' involvement were considered commendable, particularly for first-time reporting. The RVC members thanked the technical staff and NVCs of each country that responded to a call for the ASR submission. The RVC concluded that based on reports submitted and as of end 2012, there were 16 countries in which endemic measles transmission had been interrupted, while endemic rubella transmission was interrupted in 19 countries.

However, a number of countries where measles and/or rubella endemic transmission has been interrupted are at risk of re-established endemic transmission mainly due to significant immunity gaps in the population; and 6 Member States are at risk of re-established endemicity of both diseases. In addition, the Commission was not able to verify interruption of measles (9 countries) or rubella (7 countries) transmission due to insufficient surveillance data to review, and significant immunity gaps in various population groups.

Given that this was the first meeting to review the ASRs on measles and rubella elimination, there was substantial discussion about the ASR format and the data provided by countries.

This focused primarily on two issues: ensuring standardization of ASR indicators and suggestions for changes to the ASR format for subsequent reviews, including expanded specificity on the type of data coming from NVCs that will ensure greater clarity surrounding epidemiological surveillance data.

Completeness of the ASRs was generally high, although a number of ASRs lacked certain information. Lack of historical data on vaccination coverage is an example – several countries only provided coverage data for the 2010–2012 period. Some of this may have been due to unclear wording of questions in the report.

For many countries, information on the quality of surveillance indicators was either lacking or not submitted correctly. In some cases the rate of discarded cases (Table 3.3 of the ASR) was shown as a percentage, which made it difficult for the RVC to assess the frequency of suspected and discarded cases. Most countries, however, do not routinely report suspected cases, and in the present ASR format this

[4] http://www.euro.who.int/en/health-topics/communicable-diseases/measles-and-rubella/publications/2014/eliminating-measles-and-rubella.-framework-for-the-verification-process-in-the-who-european-region

question was not explicitly asked of countries. This information was something that a number of RVC members requested to be included in future ASRs, through amendment of the template. Since 2005, the Regional Office has issued guidelines to follow up on all suspected and discarded cases, but these are not followed by all Member States. In preparation for the ASR, many Member States indicated that these data are not routinely available, and it remains a challenge to obtain these data from certain countries.

Genotype data provided by countries in Table 3.4 of the ASR was in many cases unclear. It was suggested that this table be expanded to ask countries to distinguish cases as imported, import-related and endemic, to provide a clearer picture of measles and rubella elimination status and origin of the viruses. It was noted, however, that determining origin via genotyping alone was difficult. Once linked with epidemiological information, a clearer picture emerges. It was noted that integration of the genotype and epidemiological data needs to be done at the national level, with support from WHO if necessary.

Recommendations

- Recognizing existing risk for re-established endemicity of measles and rubella in the countries in the Region, the RVC recommends high vigilance, a high level of political commitment, sufficient resources and funding and implementation of key strategies, especially stressing immunity gaps and importance of the supplemental immunization activities. The RVC urged countries currently lacking an NVC to establish one, and to compile and submit annual data.
- NVCs are encouraged to work with national technical counterparts on collection and analysis of all available information, and to increase their requirements on data completeness and quality. NVCs need to be reminded that this is a priority and lack of complete and high-quality data interferes not only with documentation of interruption of endemic transmission in each Member State during the verification process, but also with achieving elimination for the Region.
- The RVC and WHO Secretariat should continue with development of the verification process requirements, related documents and tools with the goal of reaching a comprehensive process that is acceptable to all Member States. The RVC and Secretariat will coordinate these activities and processes so they are aligned with global requirements as well as with specificities of the European Region and its Member States.
- The WHO Secretariat should update and distribute the Annual Status Report for the upcoming years, considering comments from RVC and Member States, and recognizing issues with the form used for the first annual reporting period.
- The WHO Secretariat should prepare a report of the RVC meeting and feedback letters to all Member States that submitted reports, and distribute them after receiving approval from the RVC. The letters should include the RVC's main conclusions and recommendations for the particular country and its NVC.

- The WHO Secretariat should prepare letters to all countries that have not established an NVC and /or did not submit a report and urge them to develop a functioning NVC, if applicable, and submit annual reports.

Annex 1. Status of measles and rubella elimination by country

Armenia

Component	RVC comments
Population immunity	Demonstrated high population immunity supported by coverage surveys in 2006 and 2010
Epidemiology	No evidence of endemic measles and rubella cases
Surveillance performance	High-quality case-based surveillance system for measles and rubella meeting most performance indicators
Sustainability of immunization programme	Looks adequate and in line with strategic directions towards measles and rubella elimination
Supplementary evidence	Not provided
Country specific comments	Genotype data are not available from sporadic cases of measles and rubella. Armenia has further data on population immunity (results from measles and rubella supplementary immunization activities in 2008), but did not furnish it with the status report.
Final conclusion	**Interrupted endemic transmission of measles and rubella**

Classification of measles and rubella cases, by case confirmation and origin of infection in 2012
Measles

Origin of infection	Case classification			Total
	Laboratory-confirmed	Epidemiologically linked	Clinically compatible	
Imported	0	0	0	0
Import-related	0	0	0	0
Endemic	0	0	0	0
Unknown	0	0	0	0
Total	**0**	**0**	**0**	**0**

Rubella

Origin of infection	Case classification			Total
	Laboratory-confirmed	Epidemiologically linked	Clinically compatible	
Imported	0	0	0	0
Import-related	0	0	0	0
Endemic	0	0	0	0
Unknown	1	0	0	1
Total	**1**	**0**	**0**	**1**

Azerbaijan

Component	RVC comments
Population immunity	Reported high population immunity, based on high coverage with 1st and 2nd dose of measles and rubella containing vaccines; however, significant discrepancies between the data reported by country and WHO-UNICEF coverage estimate; *a measles outbreak in 2013 indicates immunity gaps in affected territories*
Epidemiology	No evidence of endemic measles and rubella cases
Surveillance performance	High-quality case-based surveillance system for measles and rubella meeting several surveillance performance indicators; some indicators are not calculated in line with Regional requirements
Sustainability of immunization programme	Looks adequate and in line with strategic directions towards measles and rubella elimination
Supplementary evidence	High-quality measles and rubella supplementary immunization activities in 2006; an electronic integrated disease surveillance system (EIDSS) is in use
Country specific comments	Status of population immunity is inconclusive; need for independent assessment
Final conclusion	**Interrupted endemic transmission of measles and rubella; at risk of re-established transmission of measles**

Classification of measles and rubella cases, by case confirmation and origin of infection in 2012

Measles

Origin of infection	Case classification			Total
	Laboratory-confirmed	Epidemiologically linked	Clinically compatible	
Imported	0	0	0	0
Import-related	0	0	0	0
Endemic	0	0	0	0
Unknown	0	0	0	0
Total	**0**	**0**	**0**	**0**

Rubella

Origin of infection	Case classification			Total
	Laboratory-confirmed	Epidemiologically linked	Clinically compatible	
Imported	0	0	0	0
Import-related	0	0	0	0
Endemic	0	0	0	0
Unknown	0	0	0	0
Total	**0**	**0**	**0**	**0**

Belarus

Component	RVC comments
Population immunity	Demonstrated high population immunity, based on high routine immunization coverage and conducted SIA, supported by results of seroprevalence studies in all population groups
Epidemiology	No evidence of endemic measles and rubella cases
Surveillance performance	High-quality case-based surveillance system for measles and rubella meeting all performance indicators
Sustainability of immunization programme	Looks adequate and in line with strategic directions towards measles and rubella elimination
Supplementary evidence	Seroprevalance study and results of SIA among adults
Country specific comments	No comments
Final conclusion	**Interrupted endemic transmission of measles and rubella**

Classification of measles and rubella cases, by case confirmation and origin of infection in 2012

Measles

Origin of infection	Case classification			Total
	Laboratory-confirmed	Epidemiologically linked	Clinically compatible	
Imported	3	0	0	3
Import-related	7	0	0	7
Endemic	0	0	0	0
Unknown	0	0	0	0
Total	**7**	**0**	**0**	**7**

Rubella

Origin of infection	Case classification			Total
	Laboratory-confirmed	Epidemiologically linked	Clinically compatible	
Imported	2	0	0	2
Import-related	1	0	0	1
Endemic	0	0	0	0
Unknown	7	0	0	7
Total	**8**	**0**	**0**	**8**

Belgium

Component	RVC comments
Population immunity	High population immunity required for interruption of endemic transmission of measles and rubella is not demonstrated; lack of national vaccination coverage data
Epidemiology	Absence of endemic measles cases was not demonstrated. Rubella incidence is unknown
Surveillance performance	Measles surveillance indicators fail to meet most requirements; surveillance of rubella is not in place
Sustainability of immunization programme	Looks adequate and in line with strategic directions towards measles and rubella elimination; however the country did not provide data on funding or vaccines stockouts
Supplementary evidence	RVC acknowledged the country messages targeting vaccine "refusals"
Country specific comments	RVC was unable to understand case classification by origin of infection in 2012
Final conclusion	**Endemic transmission of measles and rubella**

Classification of measles and rubella cases, by case confirmation and origin of infection in 2012

Measles

Origin of infection	Case classification			Total
	Laboratory-confirmed	Epidemiologically linked	Clinically compatible	
Imported	5	0	1	6
Import-related	0	0	0	0
Endemic	45	38	20	103
Unknown	0	0	0	0
Total	**45**	**38**	**20**	**103**

Rubella

Origin of infection	Case classification			Total
	Laboratory-confirmed	Epidemiologically linked	Clinically compatible	
Imported	ND	ND	ND	ND
Import-related	ND	ND	ND	ND
Endemic	ND	ND	ND	ND
Unknown	ND	ND	ND	ND
Total	ND	ND	ND	ND

Bulgaria

Component	RVC comments
Population immunity	Reported high vaccination coverage is not supported by seroprevalence study (2007–2008)
Epidemiology	Evidence showing remarkable reduction of measles and rubella cases following 2010 measles outbreak; no evidence of endemic measles and rubella cases in 2012
Surveillance performance	Case-based surveillance system for measles and rubella meeting most performance indicators
Sustainability of immunization programme	Looks adequate and in line with strategic directions towards measles and rubella elimination
Supplementary evidence	Online surveillance system to monitor congenital rubella syndrome (CRS) is planned; awareness and uptake of vaccination high following a 2010 measles outbreak; MMR catch up campaign (2010)
Country specific comments	RVC would like further clarification on surveillance data, particularly of the 21 PCR-positive cases mentioned in the ASR; need further evidence of population immunity to measles and rubella
Final conclusion	**Interrupted endemic transmission of measles and rubella; at risk of becoming re-established for both diseases**

Classification of measles and rubella cases, by case confirmation and origin of infection in 2012

Measles

Origin of infection	Case classification			Total
	Laboratory-confirmed	Epidemiologically linked	Clinically compatible	
Imported	0	0	0	0
Import-related	0	0	0	0
Endemic	0	0	0	0
Unknown	0	0	0	0
Total	**0**	**0**	**0**	**0**

Rubella

Origin of infection	Case classification			Total
	Laboratory-confirmed	Epidemiologically linked	Clinically compatible	
Imported	0	0	0	0
Import-related	0	0	0	0
Endemic	0	0	18	18
Unknown	0	0	0	0
Total	**0**	**0**	**18**	**18**

Croatia

Component	RVC comments
Population immunity	Reported high routine vaccination coverage; although serological survey (1999-2000) revealed high proportion of susceptible population in all age groups; there were areas of the country that had suboptimal (<90%) coverage and immunity gaps in various population groups
Epidemiology	Absence of reported endemic measles and rubella cases is not supported by evidence of high-quality surveillance system; genotyping data (2010-2012) are not available
Surveillance performance	Case-based surveillance system for measles and rubella meets most performance indicators, except for the rate of discarded cases and genotyping
Sustainability of immunization programme	Looks adequate and in line with strategic directions towards measles and rubella elimination; RVC noted short MMR stock outs in the past three years
Supplementary evidence	None
Country specific comments	RVC would ask NVC to assess differences between measles surveillance data in regards to classification of cases and number of cases with IgM+ results, presented in national report
Final conclusion	**Inconclusive for measles elimination; interrupted endemic transmission of rubella.** Croatia is encouraged to provide more detailed information on measles and rubella surveillance, including line-list of discarded suspected cases with results of laboratory investigations, to assure the RVC conclusion.

Classification of measles and rubella cases, by case confirmation and origin of infection in 2012

Measles

Origin of infection	Case classification			Total
	Laboratory-confirmed	Epidemiologically linked	Clinically compatible	
Imported	0	0	2	2
Import-related	0	0	0	0
Endemic	0	0	0	0
Unknown	0	0	0	0
Total	**0**	**0**	**0**	**0**

Rubella

Origin of infection	Case classification			Total
	Laboratory-confirmed	Epidemiologically linked	Clinically compatible	
Imported	0	0	1	1
Import-related	0	0	0	0
Endemic	0	0	0	0
Unknown	0	0	0	0
Total	**0**	**0**	**0**	**0**

Cyprus

Component	RVC comments
Population immunity	High population immunity is not demonstrated – coverage data are lacking for most years; where there are data, they show suboptimal immunity supported by seroprevalence study (ESEN2)
Epidemiology	No evidence of endemic measles and rubella cases
Surveillance performance	High-quality case-based surveillance system meeting some performance indicators for measles and rubella supported by results of laboratory investigations; rates of discarded cases were not calculated
Sustainability of immunization programme	Looks adequate and in line with strategic directions towards measles and rubella elimination
Supplementary evidence	No comments
Country specific comments	RVC noted that data from Cyprus do not cover the hole island and there has been no data from certain parts of the island; reported coverage seems below 90% for many years; it is possible there were potentially discarded cases missed from the report; molecular epidemiology is not in use
Final conclusion	**Interrupted endemic transmission of measles and rubella; at risk of becoming re-established for both diseases. Conclusions based on area for which data were provided.**

Classification of measles and rubella cases, by case confirmation and origin of infection in 2012

Measles

Origin of infection	Case classification			Total
	Laboratory-confirmed	Epidemiologically linked	Clinically compatible	
Imported	0	0	0	0
Import-related	0	0	0	0
Endemic	0	0	0	0
Unknown	0	0	0	0
Total	**0**	**0**	**0**	**0**

Rubella

Origin of infection	Case classification			Total
	Laboratory-confirmed	Epidemiologically linked	Clinically compatible	
Imported	0	0	0	0
Import-related	0	0	0	0
Endemic	0	0	0	0
Unknown	0	0	0	0
Total	**0**	**0**	**0**	**0**

Czech Republic

Component	RVC comments
Population immunity	Demonstrated consistently high population immunity in all age groups supported by results of routine coverage surveys
Epidemiology	No evidence of endemic measles and rubella cases
Surveillance performance	High-quality case-based surveillance system for measles and rubella meeting most performance indicators
Sustainability of immunization programme	Looks adequate and in line with strategic directions towards measles and rubella elimination
Supplementary evidence	Not provided
Country specific comments	Molecular epidemiology is not being used; routine immunization coverage data for the year 2012 should be provided with following annual update
Final conclusion	**Interrupted endemic transmission of measles and rubella**

Classification of measles and rubella cases, by case confirmation and origin of infection in 2012

Measles

Origin of infection	Case classification			Total
	Laboratory-confirmed	Epidemiologically linked	Clinically compatible	
Imported	12	0	0	12
Import-related	2	0	0	2
Endemic	8	0	0	8
Unknown	0	0	0	0
Total	**10**	**0**	**0**	**10**

Rubella

Origin of infection	Case classification			Total
	Laboratory-confirmed	Epidemiologically linked	Clinically compatible	
Imported	1	0	0	1
Import-related	1	0	0	1
Endemic	5	0	0	5
Unknown	0	0	0	0
Total	**6**	**0**	**0**	**6**

Estonia

Component	RVC comments
Population immunity	Reported consistently high population immunity
Epidemiology	No evidence of endemic measles and rubella cases
Surveillance performance	High-quality case-based surveillance system for measles and rubella meeting most performance indicators
Sustainability of immunization programme	Looks adequate and in line with strategic directions towards measles and rubella elimination
Supplementary evidence	Not provided
Country specific comments	Molecular epidemiology is not being used; need for improved immunity data especially for adolescents and adults
Final conclusion	**Interrupted endemic transmission of measles and rubella**

Classification of measles and rubella cases, by case confirmation and origin of infection in 2012

Measles

Origin of infection	Case classification			Total
	Laboratory-confirmed	Epidemiologically linked	Clinically compatible	
Imported	2	0	0	2
Import-related	2	0	0	2
Endemic	0	0	0	0
Unknown	0	0	0	0
Total	**2**	**0**	**0**	**2**

Rubella

Origin of infection	Case classification			Total
	Laboratory-confirmed	Epidemiologically linked	Clinically compatible	
Imported	0	0	0	0
Import-related	0	0	0	0
Endemic	0	0	0	0
Unknown	0	0	0	0
Total	**0**	**0**	**0**	**0**

Finland

Component	RVC comments
Population immunity	Reported consistently high population immunity before 2008 supported by serological studies in 2005 and 2010; no routine coverage data for 2008–2012; narrow survey (2011) revealed 98% MMR1 coverage
Epidemiology	No evidence of endemic measles and rubella cases supported by genotyping data
Surveillance performance	High-quality case-based surveillance system for measles and rubella meeting most performance indicators
Sustainability of immunization programme	Looks adequate and in line with strategic directions towards measles and rubella elimination
Supplementary evidence	Measles and rubella seroprevalence studies (1983-2010) reveal high population immunity in all age groups
Country specific comments	RVC urges Finland to introduce nationwide vaccination registry as soon as possible enabling reporting and monitoring of routine vaccination coverage
Final conclusion	**Interrupted transmission of measles and rubella**

Classification of measles and rubella cases, by case confirmation and origin of infection in 2012

Measles

Origin of infection	Case classification			Total
	Laboratory-confirmed	Epidemiologically linked	Clinically compatible	
Imported	4	0	0	4
Import-related	0	0	0	0
Endemic	0	0	0	0
Unknown	0	0	0	0
Total	**0**	**0**	**0**	**0**

Rubella

Origin of infection	Case classification			Total
	Laboratory-confirmed	Epidemiologically linked	Clinically compatible	
Imported	0	0	0	0
Import-related	0	0	0	0
Endemic	0	0	0	0
Unknown	0	0	0	0
Total	**0**	**0**	**0**	**0**

France

Component	RVC comments
Population immunity	High population immunity for measles and rubella was not demonstrated. The number of territories with very low (<80%) coverage is of great concern; immunization coverage data for 2012 are not available
Epidemiology	Absence of endemic measles cases is not demonstrated; rubella incidence is unknown. Molecular epidemiology shows B3, D4, D8 and H1 genotypes detected in 2012.
Surveillance performance	Measles surveillance indicators failed to meet all requirements; surveillance of rubella is not in place; instead surveillance of rubella during pregnancy and CRS is maintained
Sustainability of immunization programme	Looks adequate and in line with strategic directions towards measles and rubella elimination
Supplementary evidence	No evidence
Country specific comments	Advocacy and communication efforts with emphasis on vaccination against measles are noted
Final conclusion	**Endemic transmission of measles and rubella**

Classification of measles and rubella cases, by case confirmation and origin of infection in 2012

Measles

Origin of infection	Case classification			Total
	Laboratory-confirmed	Epidemiologically linked	Clinically compatible	
Imported	20	0	16	36
Import-related	0	0	0	0
Endemic	317	47	328	692
Unknown	58	22	48	128
Total	**375**	**69**	**376**	**820**

Rubella

Origin of infection	Case classification			Total
	Laboratory-confirmed	Epidemiologically linked	Clinically compatible	
Imported	ND	ND	ND	ND
Import-related	ND	ND	ND	ND
Endemic	ND	ND	ND	ND
Unknown	ND	ND	ND	ND
Total	ND	ND	ND	ND

Germany

Component	RVC comments
Population immunity	High population immunity for measles and rubella was not demonstrated. The number of territories with suboptimal (<95%) coverage is of concern; seroprevalence and coverage surveys data revealed significant immunity gaps in various age groups
Epidemiology	Interruption of endemic transmission of measles and rubella cases is not demonstrated; RVC noted significant measles outbreaks in 2010–2011
Surveillance performance	Measles surveillance indicators failed to meet most requirements; national surveillance of rubella was initiated in 2013
Sustainability of immunization programme	Looks adequate and in line with strategic directions towards measles and rubella elimination
Supplementary evidence	None
Country specific comments	RVC noted that there is no national vaccination registry in Germany
Final conclusion	**Inconclusive for measles interruption; endemic transmission of rubella.** Germany is encouraged to provide more detailed information on measles and rubella surveillance, including line-list of discarded suspected cases with results of laboratory investigations; it is critical to set up high-quality nationwide surveillance for rubella.

Classification of measles and rubella cases, by case confirmation and origin of infection in 2012

Measles

Origin of infection	Case classification			Total
	Laboratory-confirmed	Epidemiologically linked	Clinically compatible	
Imported	24	2	3	29
Import-related	4	1	0	5
Endemic	0	0	0	0
Unknown	93	19	20	132
Total	**97**	**20**	**20**	**137**

Rubella (from 5 eastern Federal States)

Origin of infection	Case classification			Total
	Laboratory-confirmed	Epidemiologically linked	Clinically compatible	
Imported	0	0	0	0
Import-related	0	0	0	0
Endemic	0	0	0	0
Unknown	30	2	3	35
Total	**30**	**2**	**3**	**35**

Greece

Component	RVC comments
Population immunity	High population immunity for measles and rubella was not demonstrated. The number of territories that have low (<90%) coverage is of great concern; results of coverage studies (2006 and 2012) demonstrate suboptimal MCV2/RCV2 coverage
Epidemiology	Absence of endemic measles and rubella cases is not demonstrated
Surveillance performance	Measles and rubella surveillance indicators failed to meet all requirements; chains of transmission are not documented; discarded cases are not documented/reported
Sustainability of immunization programme	RVC expressed concern regarding lack of data supporting sustainability of immunization programme
Supplementary evidence	None
Country specific comments	There is no vaccination registry system in Greece
Final conclusion	**Endemic measles transmission; inconclusive for rubella elimination.** Greece is encouraged to introduce national vaccination registry system as soon as possible; provide more detailed information on measles and rubella surveillance, including line-list of discarded suspected cases with results of laboratory investigations

Classification of measles and rubella cases, by case confirmation and origin of infection in 2012

Measles

Origin of infection	Case classification			Total
	Laboratory-confirmed	Epidemiologically linked	Clinically compatible	
Imported	3	0	0	3
Import-related	0	0	0	0
Endemic	0	0	0	0
Unknown	0	0	0	0
Total	**0**	**0**	**0**	**0**

Rubella

Origin of infection	Case classification			Total
	Laboratory-confirmed	Epidemiologically linked	Clinically compatible	
Imported	0	0	0	0
Import-related	0	0	0	0
Endemic	0	0	0	0
Unknown	0	0	0	0
Total	**0**	**0**	**0**	**0**

Ireland

Component	RVC comments
Population immunity	High population immunity for measles was not demonstrated. The number of territories with low (<90%) coverage is of great concern; results of serological studies (2003) revealed suboptimal population immunity (87-90%) for measles; although better one for rubella (97% of pregnant women in 2012)
Epidemiology	No evidence of endemic rubella transmission; absence of endemic measles cases is not demonstrated
Surveillance performance	Measles and rubella surveillance indicators failed to meet most requirements; discarded cases are not documented/reported;
Sustainability of immunization programme	Looks adequate and in line with strategic directions towards measles and rubella elimination
Supplementary evidence	MR/MMR supplementary immunization activities in 1995, 2009 and 2012–2013, although vaccination coverage was suboptimal
Country specific comments	None
Final conclusion	**Endemic measles transmission; interrupted endemic transmission of rubella, at risk of becoming re-established**

Classification of measles and rubella cases, by case confirmation and origin of infection in 2012

Measles

Origin of infection	**Case classification**			**Total**
	Laboratory-confirmed	Epidemiologically linked	Clinically compatible	
Imported	5	1	0	6
Import-related	11	50	0	61
Endemic	8	2	16	26
Unknown	2	0	9	11
Total	**21**	**52**	**25**	**98**

Rubella

Origin of infection	**Case classification**			**Total**
	Laboratory-confirmed	Epidemiologically linked	Clinically compatible	
Imported	1	0	0	1
Import-related	0	0	0	0
Endemic	0	0	1	1
Unknown	0	0	7	7
Total	**0**	**0**	**8**	**8**

Israel

Component	RVC comments
Population immunity	Historically high routine vaccination coverage with both first and second doses of MMR, although missed MMR1 coverage data for 2011–2012.
Epidemiology	No evidence of endemic measles and rubella cases supported by genotyping data; reported measles cases were import related and did not continue over 12 months
Surveillance performance	High-quality case-based surveillance system for measles and rubella meeting most performance indicators
Sustainability of immunization programme	Looks adequate and in line with strategic directions towards measles and rubella elimination
Supplementary evidence	Limited subnational supplementary immunization activities (catch-up) in 2011–2012
Country specific comments	No comments
Final conclusion	**Interrupted endemic transmission of measles and rubella**

Classification of measles and rubella cases, by case confirmation and origin of infection in 2012

Measles

Origin of infection	Case classification			Total
	Laboratory-confirmed	Epidemiologically linked	Clinically compatible	
Imported	1	0	0	1
Import-related	104	106	0	210
Endemic	0	0	0	0
Unknown	0	0	0	0
Total	**104**	**106**	**0**	**210**

Rubella

Origin of infection	Case classification			Total
	Laboratory-confirmed	Epidemiologically linked	Clinically compatible	
Imported	1	0	0	1
Import-related	0	0	0	0
Endemic	0	0	0	0
Unknown	0	0	0	0
Total	**0**	**0**	**0**	**0**

Kazakhstan

Component	RVC comments
Population immunity	High reported vaccination coverage with both first and second doses of MMR vaccine, although serological studies (2010–2012) revealed suboptimal immunity in tested individuals for measles
Epidemiology	Absence of endemic measles and rubella cases is not demonstrated
Surveillance performance	High-quality case-based surveillance system for measles and rubella meeting most performance indicators; however, discarded cases are not documented/reported
Sustainability of immunization programme	RVC expressed concern regarding lack of data supporting sustainability of immunization programme
Supplementary evidence	MR (2005, 2009) and R (2005) vaccination campaigns targeted population 15–40 years of age with high reported vaccination coverage (>99%)
Country specific comments	None
Final conclusion	**Endemic measles transmission; inconclusive for rubella elimination.** Kazakhstan is encouraged to provide more detailed information on measles and rubella surveillance, including line-list of discarded suspected cases with results of laboratory investigations

Classification of measles and rubella cases, by case confirmation and origin of infection in 2012

Measles

Origin of infection	Case classification			Total
	Laboratory-confirmed	Epidemiologically linked	Clinically compatible	
Imported	2	0	0	2
Import-related	53	0	0	53
Endemic	0	0	0	0
Unknown	0	0	0	0
Total	**53**	**0**	**0**	**53**

Rubella

Origin of infection	Case classification			Total
	Laboratory-confirmed	Epidemiologically linked	Clinically compatible	
Imported	0	0	0	0
Import-related	0	0	0	0
Endemic	6	1	6	13
Unknown	0	0	0	0
Total	**6**	**1**	**6**	**13**

Kyrgyzstan

Component	RVC comments
Population immunity	Reported high routine vaccination coverage with both first and second dose of MMR
Epidemiology	No evidence of endemic measles and rubella cases, although no genotype data for 2012
Surveillance performance	High-quality case-based surveillance system for measles and rubella meeting most performance indicators
Sustainability of immunization programme	Looks adequate and in line with strategic directions towards measles and rubella elimination
Supplementary evidence	No comments
Country specific comments	RVC encourages Kyrgyzstan to further improve case-based surveillance for measles and rubella, including genotyping of all confirmed chains of transmission and sporadic cases
Final conclusion	**Interrupted endemic transmission of measles and rubella**

Classification of measles and rubella cases, by case confirmation and origin of infection in 2012

Measles

Origin of infection	Case classification			Total
	Laboratory-confirmed	Epidemiologically linked	Clinically compatible	
Imported	0	0	0	0
Import-related	0	0	0	0
Endemic	0	0	0	0
Unknown	0	0	0	0
Total	**0**	**0**	**0**	**0**

Rubella

Origin of infection	Case classification			Total
	Laboratory-confirmed	Epidemiologically linked	Clinically compatible	
Imported	0	0	0	0
Import-related	0	0	0	0
Endemic	0	0	0	0
Unknown	6	0	0	6
Total	**6**	**0**	**0**	**6**

Latvia

Component	RVC comments
Population immunity	High population immunity is not demonstrated for most years under the report; results of the ESEN2 seroprevalence study do not provide evidence of high and evenly-distributed population immunity that is required to interrupt measles and rubella transmission
Epidemiology	No evidence of endemic measles and rubella cases
Surveillance performance	High-quality case-based surveillance system meeting most performance indicators for measles and rubella and supported by results of laboratory investigations
Sustainability of immunization programme	Looks adequate and in line with strategic directions towards measles and rubella elimination
Supplementary evidence	No comments
Country specific comments	RVC noted that reported coverage has been suboptimal over the three-year period, particularly at subnational level; national programme is encouraged to take this into consideration so resources could be allocated to overcome this challenge
Final conclusion	**Interrupted endemic transmission of measles and rubella; at risk of becoming re-established for both diseases.**

Classification of measles and rubella cases, by case confirmation and origin of infection in 2012

Measles

Origin of infection	Case classification			Total
	Laboratory-confirmed	Epidemiologically linked	Clinically compatible	
Imported	1	0	0	1
Import-related	1	0	0	1
Endemic	0	0	0	0
Unknown	1	0	0	1
Total	**2**	**0**	**0**	**2**

Rubella

Origin of infection	Case classification			Total
	Laboratory-confirmed	Epidemiologically linked	Clinically compatible	
Imported	3	0	0	3
Import-related	0	0	0	0
Endemic	0	0	0	0
Unknown	4	0	1	5
Total	**4**	**0**	**1**	**5**

Lithuania

Component	RVC comments
Population immunity	Reported routine immunization coverage with both doses of measles and rubella containing vaccine is high but decreasing; it is of concern that a number of districts in the country had < 90% coverage
Epidemiology	Absence of endemic cases is not supported by evidence of high-quality surveillance for measles and rubella; reported rate of discarded cases is not justified with a line-list of suspected cases tested negative in a proficient laboratory; genotyping data are not available
Surveillance performance	Measles surveillance indicators fail to meet most requirements, including the rate of discarded cases and the timeliness of investigation; there is no evidence of rubella surveillance in 2011–2012
Sustainability of immunization programme	Looks adequate and in line with strategic directions towards measles and rubella elimination; however the country did not provide data on funding or vaccines stockouts
Supplementary evidence	RVC welcomes country engagement in European Immunization Week. However, low public support for immunization (54% of those surveyed) is of great concern and needs to be addressed
Country specific comments	No comments
Final conclusion	**Inconclusive both for measles and rubella elimination.** Lithuania is encouraged to provide more detailed information on measles and rubella surveillance, including line-list of discarded suspected cases with results of laboratory investigations

Classification of measles and rubella cases, by case confirmation and origin of infection in 2012

Measles

Origin of infection	Case classification			Total
	Laboratory-confirmed	Epidemiologically linked	Clinically compatible	
Imported	2	0	0	2
Import-related	0	0	0	0
Endemic	0	0	0	0
Unknown	0	0	0	0
Total	**0**	**0**	**0**	**0**

Rubella

Origin of infection	Case classification			Total
	Laboratory-confirmed	Epidemiologically linked	Clinically compatible	
Imported	0	0	0	0
Import-related	0	0	0	0
Endemic	0	0	0	0
Unknown	0	0	0	0
Total	**0**	**0**	**0**	**0**

Luxembourg

Component	RVC comments
Population immunity	High reported coverage (survey based) for first dose of MMR; no data provided for second dose of MMR; high population immunity supported by seroprevalence studies (2004–2008)
Epidemiology	No evidence of endemic measles and rubella cases
Surveillance performance	High-quality case-based surveillance system meeting most performance indicators for measles but fewer for rubella
Sustainability of immunization programme	Insufficient data provided to make a conclusion or comment, although standard operating procedures and sufficient vaccine are in place
Supplementary evidence	Ongoing MMR supplementary immunization activities targeting all refugees; high public acceptance and a programme in place to vaccinate all newcomers to the country
Country specific comments	RVC could not make a conclusion regarding population immunity due to lack of data
Final conclusion	**Interrupted endemic transmission of measles and rubella; at risk of becoming re-established for both diseases**

Classification of measles and rubella cases, by case confirmation and origin of infection in 2012

Measles

Origin of infection	Case classification			Total
	Laboratory-confirmed	Epidemiologically linked	Clinically compatible	
Imported	1	0	0	1
Import-related	1	0	0	1
Endemic	0	0	0	0
Unknown	0	0	0	0
Total	**1**	**0**	**0**	**1**

Rubella

Origin of infection	Case classification			Total
	Laboratory-confirmed	Epidemiologically linked	Clinically compatible	
Imported	1	0	0	1
Import-related	0	0	0	0
Endemic	0	0	0	0
Unknown	0	0	0	0
Total	**0**	**0**	**0**	**0**

Montenegro

Component	RVC comments
Population immunity	Reported suboptimal routine immunization coverage (around 90%) of the first dose of measles and rubella containing vaccine; it is of concern that a number of districts in the country had < 90% coverage and a sizable number of underimmunized individuals in the Roma population
Epidemiology	Absence of endemic cases is not supported by evidence of high-quality surveillance for measles and rubella; reported high rate of discarded cases is not justified with a line-list of suspected cases tested negative in a proficient laboratory; genotyping data (2010–2012) are not available
Surveillance performance	Measles surveillance indicators are fair, meeting most requirements
Sustainability of immunization programme	Looks adequate and in line with strategic directions towards measles and rubella elimination
Supplementary evidence	RVC acknowledges country efforts towards closing immunity gaps and improving surveillance
Country specific comments	Introduction of e-registry of vaccinations and yearly SIAs are recognized
Final conclusion	**Inconclusive both for measles and rubella elimination.** Montenegro is encouraged to provide more detailed information on measles and rubella surveillance, including line-list of discarded suspected cases with results of laboratory investigations

Classification of measles and rubella cases, by case confirmation and origin of infection in 2012

Measles

Origin of infection	Case classification			Total
	Laboratory-confirmed	Epidemiologically linked	Clinically compatible	
Imported	0	0	0	0
Import-related	0	0	0	0
Endemic	0	0	0	0
Unknown	0	0	0	0
Total	**0**	**0**	**0**	**0**

Rubella

Origin of infection	Case classification			Total
	Laboratory-confirmed	Epidemiologically linked	Clinically compatible	
Imported	0	0	0	0
Import-related	0	0	0	0
Endemic	0	0	0	0
Unknown	0	0	0	0
Total	**0**	**0**	**0**	**0**

Netherlands

Component	RVC comments
Population immunity	High reported coverage for both first and second dose but recognition of existing unvaccinated/not fully vaccinated population groups at subnational level (in the orthodox Protestant, Roma and refugee communities)
Epidemiology	No evidence of endemic measles and rubella cases supported by genotyping data
Surveillance performance	Case-based surveillance system meeting some performance indicators for measles but fewer for rubella; supported by results of laboratory investigation of suspected cases
Sustainability of immunization programme	Looks adequate and in line with strategic directions towards measles and rubella elimination
Supplementary evidence	Ongoing MMR supplementary immunization activities targeting high-risk population groups; high general public acceptance
Country specific comments	No comments
Final conclusion	**Interrupted endemic transmission of measles and rubella; at risk of becoming re-established for both diseases**

Classification of measles and rubella cases, by case confirmation and origin of infection in 2012

Measles

Origin of infection	Case classification			Total
	Laboratory-confirmed	Epidemiologically linked	Clinically compatible	
Imported	8	0	0	8
Import-related	1	0	0	1
Endemic	0	0	0	0
Unknown	1	0	0	1
Total	**2**	**0**	**0**	**2**

Rubella

Origin of infection	Case classification			Total
	Laboratory-confirmed	Epidemiologically linked	Clinically compatible	
Imported	0	0	0	0
Import-related	0	0	0	0
Endemic	0	0	0	0
Unknown	1	0	0	1
Total	**1**	**0**	**0**	**1**

Portugal

Component	RVC comments
Population immunity	Documented high routine vaccination coverage with both first and second dose of MMR supported by seroprevalence study (2001-02)
Epidemiology	No evidence of endemic measles and rubella cases
Surveillance performance	High-quality case-based surveillance system for measles and rubella meeting major performance indicators
Sustainability of immunization programme	Looks adequate and in line with strategic directions towards measles and rubella elimination
Supplementary evidence	Good public acceptance of vaccination programme
Country specific comments	RVC highly appreciates extensive documentation of measles and rubella status
Final conclusion	**Interrupted endemic transmission of measles and rubella**

Classification of measles and rubella cases, by case confirmation and origin of infection in 2012
Measles

Origin of infection	Case classification			Total
	Laboratory-confirmed	Epidemiologically linked	Clinically compatible	
Imported	3	0	0	3
Import-related	2	1	0	3
Endemic	0	0	0	0
Unknown	0	0	1	1
Total	**2**	**1**	**1**	**4**

Rubella

Origin of infection	Case classification			Total
	Laboratory-confirmed	Epidemiologically linked	Clinically compatible	
Imported	0	0	0	0
Import-related	0	0	0	0
Endemic	0	0	0	0
Unknown	0	0	2	2
Total	**0**	**0**	**2**	**2**

Republic of Moldova

Component	RVC comments
Population immunity	Reported high routine vaccination coverage of the first dose of MMR and low coverage of the second dose (89-92%); serological study (2011) revealed suboptimal population immunity against measles in all age groups; there were areas of the country that had low (<90%) coverage
Epidemiology	Absence of reported endemic measles cases is not supported by evidence of high-quality surveillance system
Surveillance performance	Case-based surveillance system for measles and rubella failed to meet most performance indicators
Sustainability of immunization programme	Looks adequate and in line with strategic directions towards measles and rubella elimination
Supplementary evidence	MR (2002-2003) and MMR (2008) immunization campaigns are taken into consideration by the RVC
Country specific comments	None
Final conclusion	**Inconclusive for measles elimination; interrupted endemic transmission of rubella, at risk of becoming re-established.** Republic of Moldova is encouraged to provide more detailed information on measles and rubella surveillance, including line-list of discarded suspected cases with results of laboratory investigations

Classification of measles and rubella cases, by case confirmation and origin of infection in 2012

Measles

Origin of infection	Case classification			Total
	Laboratory-confirmed	Epidemiologically linked	Clinically compatible	
Imported	1	0	0	1
Import-related	10	0	0	10
Endemic	0	0	0	0
Unknown	0	0	0	0
Total	**10**	**0**	**0**	**10**

Rubella

Origin of infection	Case classification			Total
	Laboratory-confirmed	Epidemiologically linked	Clinically compatible	
Imported	1	0	0	1
Import-related	0	0	0	0
Endemic	0	0	0	0
Unknown	2	0	0	2
Total	**2**	**0**	**0**	**2**

Russian Federation

Component	RVC comments
Population immunity	High population immunity for measles and rubella was reported; however, there are areas of the country that have immunity gaps in various population groups
Epidemiology	Interruption of endemic measles and rubella virus transmission was not demonstrated
Surveillance performance	Case-based surveillance system for measles and rubella meets all performance indicators
Sustainability of immunization programme	Looks adequate and in line with strategic directions towards measles and rubella elimination
Supplementary evidence	The Russian Federation conducts annual seroprevalence studies as part of supplementary surveillance and noted strong political support for vaccination. RVC acknowledged advocacy and communication efforts with emphasis on vaccination against measles and rubella
Country specific comments	RVC noted that the Russian Federation initiated the verification process in 2010 concluding that measles had been eliminated in all 89 Federal districts in 2010. However, later outbreaks showed re-establishment of endemic measles transmission.
Final conclusion	**Endemic transmission of measles and rubella.**

Classification of measles and rubella cases, by case confirmation and origin of infection in 2012

Measles

Origin of infection	**Case classification**			**Total**
	Laboratory-confirmed	Epidemiologically linked	Clinically compatible	
Imported	57	1	0	58
Import-related	8	2	0	10
Endemic	1950	108	4	2062
Unknown	0	0	0	0
Total	**1958**	**110**	**4**	**2072**

Rubella

Origin of infection	**Case classification**			**Total**
	Laboratory-confirmed	Epidemiologically linked	Clinically compatible	
Imported	14	1	2	17
Import-related	1	0	0	1
Endemic	921	58	6	985
Unknown	0	0	0	0
Total	922	58	6	986

Serbia

Component	RVC comments
Population immunity	High population immunity for measles and rubella was not demonstrated. A number of territories with low (<90%) coverage is of concern; historical coverage data were not provided
Epidemiology	Interruption of endemic transmission of measles and rubella cases is not demonstrated; RVC noted the significant measles outbreak in 2011 while rubella incidence was steady
Surveillance performance	Measles surveillance indicators failed to meet most requirements; surveillance of rubella was not in place
Sustainability of immunization programme	Looks adequate and in line with strategic directions towards measles and rubella elimination
Supplementary evidence	None
Country specific comments	None
Final conclusion	**Inconclusive for measles elimination; endemic transmission of rubella.** Serbia is encouraged to provide more detailed information on measles and rubella surveillance, including line-list of discarded suspected cases with results of laboratory investigations

Classification of measles and rubella cases, by case confirmation and origin of infection in 2012

Measles

Origin of infection	Case classification			Total
	Laboratory-confirmed	Epidemiologically linked	Clinically compatible	
Imported	1	0	0	1
Import-related	0	0	0	0
Endemic	0	0	0	0
Unknown	0	0	0	0
Total	**0**	**0**	**0**	**0**

Rubella

Origin of infection	Case classification			Total
	Laboratory-confirmed	Epidemiologically linked	Clinically compatible	
Imported	0	0	0	0
Import-related	0	0	0	0
Endemic	0	0	0	0
Unknown	0	0	14	14
Total	**0**	**0**	**14**	**14**

Slovakia

Component	RVC comments
Population immunity	Reported high routine vaccination coverage with both first and second dose of MMR
Epidemiology	No evidence of endemic measles and rubella cases, although not supported by genotyping data
Surveillance performance	High-quality case-based surveillance system for measles and rubella meeting major performance indicators
Sustainability of immunization programme	Looks adequate and in line with strategic directions towards measles and rubella elimination
Supplementary evidence	Good public acceptance of vaccination programme
Country specific comments	No comments
Final conclusion	**Interrupted endemic transmission of measles and rubella**

Classification of measles and rubella cases, by case confirmation and origin of infection in 2012

Measles

Origin of infection	Case classification			Total
	Laboratory-confirmed	Epidemiologically linked	Clinically compatible	
Imported	1	0	0	1
Import-related	0	0	0	0
Endemic	0	0	0	0
Unknown	0	0	1	0
Total	**0**	**0**	**0**	**0**

Rubella

Origin of infection	Case classification			Total
	Laboratory-confirmed	Epidemiologically linked	Clinically compatible	
Imported	0	0	0	0
Import-related	0	0	0	0
Endemic	0	0	0	0
Unknown	0	0	0	0
Total	**0**	**0**	**0**	**0**

Slovenia

Component	RVC comments
Population immunity	Demonstrated consistently high population immunity in most age groups, supported by high reported immunization coverage with two doses of MMR vaccine since 1999 and results of seroprevalence studies
Epidemiology	No evidence of endemic measles and rubella transmission
Surveillance performance	High-quality case-based surveillance system for measles and rubella meeting most performance indicators
Sustainability of immunization programme	Looks adequate and in line with strategic directions towards measles and rubella elimination
Supplementary evidence	Results of seroprevalence studies demonstrate high level of immunity against measles and rubella in various age groups
Country specific comments	Missing line-list of suspected cases discarded as non-measles or non-rubella based on results of laboratory investigations. Based on reported information, the country should consider gaps in the population immunity of persons older than 30 years.
Final conclusion	**Interrupted endemic transmission of measles and rubella**

Classification of measles and rubella cases, by case confirmation and origin of infection in 2012

Measles

Origin of infection	Case classification			Total
	Laboratory-confirmed	Epidemiologically linked	Clinically compatible	
Imported	2	0	0	2
Import-related	0	0	0	0
Endemic	0	0	0	0
Unknown	0	0	1	0
Total	**0**	**0**	**0**	**0**

Rubella

Origin of infection	Case classification			Total
	Laboratory-confirmed	Epidemiologically linked	Clinically compatible	
Imported	0	0	0	0
Import-related	0	0	0	0
Endemic	0	0	0	0
Unknown	0	0	0	0
Total	**0**	**0**	**0**	**0**

Spain

Component	RVC comments
Population immunity	High vaccination coverage for measles and rubella was reported; however, there were areas of the country that had low (<90%) coverage and immunity gaps in various population groups
Epidemiology	Interruption of endemic measles and rubella virus transmission was not demonstrated
Surveillance performance	Case-based surveillance system for measles and rubella meets most performance indicators, except for the rate of discarded cases
Sustainability of immunization programme	Looks adequate and in line with strategic directions towards measles and rubella elimination
Supplementary evidence	Public acceptance of vaccination was claimed to be generally good; RVC noted that supplementary immunization activities targeting population groups at risk were limited
Country specific comments	None
Final conclusion	**Endemic transmission of measles and rubella**

Classification of measles and rubella cases, by case confirmation and origin of infection in 2012

Measles

Origin of infection	Case classification			Total
	Laboratory-confirmed	Epidemiologically linked	Clinically compatible	
Imported	21	0	1	22
Import-related	8	3	0	11
Endemic	284	240	82	606
Unknown	500	0	65	565
Total	**792**	**243**	**147**	**1182**

Rubella

Origin of infection	Case classification			Total
	Laboratory-confirmed	Epidemiologically linked	Clinically compatible	
Imported	13	0	1	14
Import-related	3	0	0	3
Endemic	22	0	3	25
Unknown	18	0	4	22
Total	**43**	**0**	**7**	**50**

Switzerland

Component	RVC comments
Population immunity	National estimates of vaccination coverage for measles and rubella were relatively low; practically all cantons reported at least one year of MMR coverage below 90% in 2010-2012
Epidemiology	Interruption of endemic measles and rubella virus transmission was not demonstrated; molecular epidemiology shows circulation of D4 and D8 measles strains
Surveillance performance	Measles surveillance performance indicators fail to meet most requirements; discarded cases are often not reported by physicians
Sustainability of immunization programme	Looks adequate and in line with strategic directions towards measles and rubella elimination
Supplementary evidence	Surveys (1999–2003) revealed very low coverage (66–84.6%) depending on population groups and the type of health care provider
Country specific comments	Current 10% deductible payment on insurance claims for immunization services may create a potential barrier to access for children of families with limited resources. Public acceptance of immunization was low, despite information being distributed to parents and children at school entry and universities.
Final conclusion	**Endemic transmission of measles and rubella.**

Classification of measles and rubella cases, by case confirmation and origin of infection in 2012

Measles

Origin of infection	Case classification			Total
	Laboratory-confirmed	Epidemiologically linked	Clinically compatible	
Imported	6	0	0	6
Import-related	1	3	0	4
Endemic	16	2	11	29
Unknown	5	0	1	6
Total	**22**	**5**	**12**	**39**

Rubella

Origin of infection	Case classification			Total
	Laboratory-confirmed	Epidemiologically linked	Clinically compatible	
Imported	0	0	0	0
Import-related	0	0	0	0
Endemic	2	0	0	2
Unknown	1	0	0	1
Total	**3**	**0**	**0**	**3**

Tajikistan

Component	RVC comments
Population immunity	High reported routine immunization coverage of both doses of measles and rubella containing vaccines (>95%), however, given the polio outbreak in Tajikistan in 2010, it was assumed that the coverage may not be sufficiently high
Epidemiology	For both measles and rubella, absence of endemic transmission is not supported by genotyping or review of discarded cases
Surveillance performance	Measles surveillance indicators are fair, meeting most requirements except the rate of discarded cases
Sustainability of immunization programme	In line with strategic directions towards measles and rubella elimination, however funding is questionable
Supplementary evidence	RVC acknowledges country efforts towards closing immunity gaps and high public acceptance of immunization; serosurvey results not available for RVC review
Country specific comments	Nationwide measles and rubella "catch-up" campaign for 2.3 million people aged 1 to 29 years in 2009 and recent introduction of universal rubella immunization programme (2010) were taken into consideration
Final conclusion	**Inconclusive both for measles and rubella elimination.** RVC encourages Tajikistan to provide more complete surveillance data, including line-list of discarded cases, in order to permit RVC to determine measles and rubella elimination status in the country.

Classification of measles and rubella cases, by case confirmation and origin of infection in 2012

Measles

Origin of infection	Case classification			Total
	Laboratory-confirmed	Epidemiologically linked	Clinically compatible	
Imported	1	0	0	1
Import-related	10	0	0	10
Endemic	3	0	0	3
Unknown	0	0	0	0
Total	**13**	**0**	**0**	**13**

Rubella

Origin of infection	Case classification			Total
	Laboratory-confirmed	Epidemiologically linked	Clinically compatible	
Imported	0	0	0	0
Import-related	0	0	0	0
Endemic	1	0	9	10
Unknown	0	0	0	0
Total	**1**	**0**	**9**	**10**

Turkmenistan

Component	RVC comments
Population immunity	Uniformly high reported vaccination coverage of both doses of measles-containing vaccine since 2005 (rubella – since 2007)
Epidemiology	For both measles and rubella, absence of endemic transmission is not supported by genotyping or review of discarded cases
Surveillance performance	Measles surveillance indicators are fair, meeting most requirements except the rate of discarded cases
Sustainability of immunization programme	Looks adequate and in line with strategic directions towards measles and rubella elimination
Supplementary evidence	High political commitment to measles and rubella elimination and high public acceptance of immunization are acknowledged by the RVC
Country specific comments	Measles and rubella supplementary immunization activities in 2007–2009 addressing men up to 33 years of age and women up to 40 years were acknowledged by the RVC
Final conclusion	**Inconclusive both for measles and rubella elimination.** RVC recognizes that Turkmenistan has achieved high vaccination coverage, has implemented broad age-range catch-up vaccination, and has demonstrated strong political commitment; weaknesses in surveillance quality are the only reason that the country is not considered to have achieved elimination. RVC encourages Turkmenistan to provide more complete surveillance data, including line-list of discarded cases, in order to permit the RVC to determine the measles and rubella elimination status in the country.

Classification of measles and rubella cases, by case confirmation and origin of infection in 2012

Measles

Origin of infection	Case classification			Total
	Laboratory-confirmed	Epidemiologically linked	Clinically compatible	
Imported	0	0	0	0
Import-related	0	0	0	0
Endemic	0	0	0	0
Unknown	0	0	0	0
Total	**0**	**0**	**0**	**0**

Rubella

Origin of infection	Case classification			Total
	Laboratory-confirmed	Epidemiologically linked	Clinically compatible	
Imported	0	0	0	0
Import-related	0	0	0	0
Endemic	0	0	0	0
Unknown	0	0	0	0
Total	**0**	**0**	**0**	**0**

United Kingdom of Great Britain and Northern Ireland (the United Kingdom)

Component	RVC comments
Population immunity	Low vaccination coverage (<90%), except for the first dose of MMR in 2012; RVC acknowledged efforts towards closing immunity gaps through supplementary immunization activities targeting unvaccinated populations
Epidemiology	Interruption of endemic measles and rubella virus transmission was not demonstrated; incidence of rubella was about 1 per million population, while that for measles was much higher as evidenced by the recent outbreak in Wales
Surveillance performance	Measles and rubella surveillance performance indicators met most requirements; discarded cases were not reported to WHO
Sustainability of immunization programme	Looks adequate and in line with strategic directions towards measles and rubella elimination.
Supplementary evidence	None
Country specific comments	The RVC appreciated the work of national health authorities towards measles and rubella elimination in the United Kingdom
Final conclusion	**Endemic transmission of measles and rubella**

Classification of measles and rubella cases, by case confirmation and origin of infection in 2012

Measles

Origin of infection	Case classification			Total
	Laboratory-confirmed	Epidemiologically linked	Clinically compatible	
Imported	27	0	NA	27
Import-related	11	0	NA	11
Endemic	2041	3	NA	2044
Unknown	0	0	NA	0
Total	**2052**	**3**	**NA**	**2055**

Rubella

Origin of infection	Case classification			Total
	Laboratory-confirmed	Epidemiologically linked	Clinically compatible	
Imported	9	0	NA	9
Import-related	5	0	NA	5
Endemic	56	0	NA	56
Unknown	0	0	NA	0
Total	**61**	**0**	**NA**	**61**

Uzbekistan

Component	RVC comments
Population immunity	Uniformly high reported vaccination coverage of both doses of measles-containing vaccine of the period under report
Epidemiology	For both measles and rubella, absence of endemic transmission is not supported by genotyping or review of discarded cases
Surveillance performance	Measles surveillance indicators are fair, meeting most requirements except the rate of discarded cases
Sustainability of immunization programme	Looks adequate and in line with strategic directions towards measles and rubella elimination
Supplementary evidence	High political commitment to measles and rubella elimination and high public acceptance of immunization are acknowledged by the RVC
Country specific comments	Vaccine stockout in 2010 was taken into consideration; measles and rubella supplementary immunization activities in 2007 and 2011 are acknowledged
Final conclusion	**Inconclusive both for measles and rubella elimination.** RVC encourages Uzbekistan to provide more complete surveillance data, including line-list of discarded cases, in order to permit RVC to determine measles and rubella elimination status in the country

Classification of measles and rubella cases, by case confirmation and origin of infection in 2012

Measles

Origin of infection	Case classification			Total
	Laboratory-confirmed	Epidemiologically linked	Clinically compatible	
Imported	0	0	0	0
Import-related	0	0	0	0
Endemic	0	0	0	0
Unknown	0	0	0	0
Total	**0**	**0**	**0**	**0**

Rubella

Origin of infection	Case classification			Total
	Laboratory-confirmed	Epidemiologically linked	Clinically compatible	
Imported	0	0	0	0
Import-related	0	0	0	0
Endemic	1	0	22	23
Unknown	0	0	0	0
Total	**1**	**0**	**22**	**23**

Annex 2. Meeting programme

Day 1: 28 October 2013

13:00-13:20	Opening WHO/Europe; Regional Verification Commission (RVC)	
13:20-13:30	Status of measles and rubella elimination: Global and WHO Regional Office for Europe regional update	WHO headquarters
13:30-13:45	Status of measles and rubella elimination: WHO Regional Office for Europe regional update	WHO/Europe
13:45-14:00	Measles and rubella elimination: Package of accelerated action 2013-2015	WHO/Europe
14:00-14:20	*Coffee break*	
14:20-14:40	Measles and rubella laboratory network: status and performance	WHO/Europe
14:40-15:00	Status of Annual Status Reports (ASR) submission; introduction to the ASR review	WHO/Europe
15:00-17:00	Review Annual Status Reports: Group 1	RVC members
17:00-18:30	Reception	

Day 2: 29 October

08:00-09:30	Review Annual Status Reports: Group 2	RVC members
09:30:10:00	*Coffee break*	
10:00-11:30	Review Annual Status Reports: Group 3	RVC members
11:30-13:00	Review Annual Status Reports: Group 4	RVC members
13:00-14:00	*Lunch*	
14:00-15:30	Review Annual Status Reports: Group 5	RVC members
15:30-16:00	*Coffee break*	
16:30-18:00	Review Annual Status Reports: Group 6	RVC members

Day 3: 30 October

08:00-09:30	Discussions, conclusions and recommendations	RVC members; WHO/Europe
09:30:11:00	ASR/update format/changes and modification	RVC members; WHO/Europe
11:00:11:30	*Coffee break*	
11:30-12:30	Plan of action for 2014, working procedures	RVC members; WHO/Europe
12:30-13:00	Closure	

Annex 3. List of participants

RVC members

Professor Susanna Esposito (*Chair)*
Università degli Studi di Milano
Fondazione IRCCS Ca' Granda Ospedale Maggiore Policlinico
Italy

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Consultant Epidemiologist
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Dr Irja Davidkin
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National Center for Infectious andParasitic Diseases, Ministry of Health
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Dr Gunter M. Pfaff
Head of Department
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Dr José Ignacio Santos Preciado
Professor of Medicine
Universidad Nacional Autónoma de México
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CDC Representative

Dr Nino Khetsuriani
Team Lead, European Region
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ECDC Representative

Dr Sabrina Bacci
Expert Vaccine Preventable Diseases
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Observers

Dr Margarita Balasanyan
WHO Consultant
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Professor Leyla Nmazova-Baranova

Pediatrics and Allergy-Immunology, Deputy Director of the Scientific Center of Children's Health, Moscow, the Russian Federation
Head of the Department of Allergy-Immunology in the Moscow Medical University and Head of the Department of Pediatrics in the Russian Research Medical University
President of the European Pediatric Association EPA/UNEPSA
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Rapporteur

Mr Kai Lashley
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World Health Organization

Dr Peter Strebel
Medical Officer and Priority Area Leader for
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