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REGIONAL OFFICE FOR **Europe**

**Verification of Measles and Rubella Elimination in  
the WHO European Region  
Report on a series of intercountry meetings  
October 2012 – February 2013**

## ABSTRACT

A series of four intercountry meetings on the verification process for measles and rubella elimination in the European Region of the World Health Organization (WHO) were held between October 2012 and February 2013. The goal of these meetings was to brief all Member States on the proposed framework for verification of elimination of measles and rubella and the format and requirements of the annual reporting system. The meetings also reviewed performance indicators of measles and rubella elimination, the terms of reference for national verification committees and their relationships and reporting procedures with the Regional Verification Commission and the WHO Secretariat. The meeting report summarizes the discussions, presentations and RVC recommendations.

## KEYWORDS

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## **Executive summary**

A series of four intercountry meetings on the verification process for measles and rubella elimination in the European Region of the World Health Organization (WHO) were held between October 2012 and February 2013. The goal of these meetings was to brief all Member States on the proposed framework for verification of elimination of measles and rubella and the format and requirements of the annual reporting system. The meetings also served to review performance indicators of measles and rubella elimination, and to discuss the terms of reference for national verification committees (NVCs) and their relationships and reporting procedures with the Regional Verification Commission (RVC) and the WHO Secretariat.

Meetings were held in Tashkent, Uzbekistan, 23–24 October 2012; Copenhagen, Denmark, 29–30 January 2013; Rome, Italy, 12–13 February 2013; and Sofia, Bulgaria, 27–28 February 2013. The meetings in Copenhagen, Rome and Sofia were supported by the European Centre for Disease Prevention and Control (ECDC). The full RVC attended the meeting in Tashkent, and two members represented the RVC at the meetings in Copenhagen, Rome and Sofia.

While many of the participating countries had formally established an NVC by the time of the meetings, many others had not, intending to use participation in the meeting as a stimulus to finalize the process. Considerable progress had already been made in the Region toward achieving high-quality routine immunization coverage and sensitive surveillance systems for measles and rubella. Routine rubella reporting, however, was not in place in some countries and surveillance for congenital rubella syndrome (CRS) continued to be a challenge for many. Despite the regional commitment to measles and rubella elimination, financial crisis challenges were making it more difficult to maintain high-level political, financial and public support for immunization services in general.

The first annual report on measles and rubella elimination was expected by the end of July 2013. While most Member States representatives were confident that the reporting requirements could be met, several were concerned that it might not be possible to report fully on the required surveillance indicators. For these countries further clarification and explanation may be helpful on the nature and extent of supplemental and additional evidence that can be provided to demonstrate the status of measles and rubella elimination activities.

The RVC expressed support for the documents, indicators and tools established by the WHO Secretariat, as a good foundation for monitoring and reporting progress toward measles and rubella elimination. The RVC agreed to assess needs for further modifications following submission of the first annual status reports.

## **Introduction**

The Health for All Policy Framework for the WHO European Region, approved by the WHO Regional Committee for Europe in 1998, identified the targets of eliminating measles by 2007 and reducing the incidence of CRS to <1 case per 100 000 live births by 2010. The WHO Regional Committee for Europe at its 55<sup>th</sup> session in 2005 adapted the proposed resolution to include rubella elimination as a regional target and proposed 2010 as the elimination target for both diseases. Although WHO MS had made significant progress towards measles and rubella elimination, the goals were not achieved by 2010. The WHO Regional Committee for Europe conducted an in-depth review of the status of measles and rubella elimination in the Region and concluded at its 60th session (September 2010) that the regional measles and rubella elimination goals were achievable; and a new target date of 2015 was established.

In 2009, WHO Regional Office for Europe initiated the process of defining the steps for documenting and verifying the elimination of measles and rubella and prevention of CRS. This process included establishing the Regional Verification Commission (RVC) for Measles and Rubella Elimination. The RVC is an independent group of experts with responsibility for verifying measles and rubella elimination in the WHO European Region. The Vaccine Preventable Diseases and Immunization Programme (VPI) of the WHO Regional Office for Europe serve as the Secretariat to the RVC. Regional verification of measles and rubella elimination requires that all countries in the Region provide credible evidence they have been free from endemic measles and rubella virus transmission for at least three consecutive years.

To initiate the documentation on progress towards measles and rubella elimination in the WHO European Region, the Regional Office developed a framework for the verification process. The RVC adopted this framework during its first meeting on 24-25 January 2012 at the WHO Regional Office in Copenhagen, Denmark. During this meeting the RVC recommended that each WHO Member State establish its own national verification committee (NVC). The RVC also recommended that the RVC Secretariat develop a standard format for country annual progress reports: the Measles and Rubella Elimination Annual Status Report (ASR).

## **Meeting participants and objectives**

A series of four intercountry meetings were established to brief all MS on the framework for the verification process in the WHO European Region and the format and requirements of the Annual Status Report.

The primary purpose of this series of meetings was to increase awareness, knowledge and understanding within Member State (MS) of the verification process of measles and rubella elimination in the European Region. The meetings also served to increase understanding and knowledge among RVC members with regard to current national capacities to document measles and rubella elimination according to the Measles and Rubella Elimination Framework developed by the Regional Office. These meetings provided the first opportunity for establishing close collaboration between NVCs (and prospective NVC members from the participating MS) and the RVC for initiating the measles/rubella elimination status annual reporting process.

The specific objectives were:

- to update newly established NVCs on the framework and process of verification of measles and rubella elimination in the WHO European Region;
- to review performance indicators of measles and rubella elimination and availability of relevant data in participating MS;
- to review the terms of reference for the NVCs;
- to review operational procedures for the NVCs and their relationship with the RVC and the WHO Secretariat;
- to discuss the use of the verification process to accelerate actions towards the measles and rubella elimination goals, including increasing vaccination coverage with measles- and rubella-containing vaccines and strengthening surveillance.

The meetings were held in:

- **Tashkent**, Uzbekistan, 23-24 October 2012 (including representatives from Armenia, Azerbaijan, Belarus, Georgia, Kazakhstan, Kyrgyzstan, Republic of Moldova, Russian Federation, Tajikistan, Turkmenistan, Ukraine and Uzbekistan);
- **Copenhagen**, Denmark, 29-30 January 2013 (including representatives from Austria, Belgium, Denmark, Estonia, Finland, Germany, Ireland, Iceland, Latvia, Lithuania, Luxembourg, the Netherlands, Norway, Sweden, Switzerland and the United Kingdom);
- **Rome**, Italy, 12-13 February 2013 (including representatives from Cyprus, France, Greece, Israel, Italy, Malta, Portugal, Slovenia and Spain);
- **Sofia**, Bulgaria, 27-28 February 2013 (including representatives from Albania, Bulgaria, Croatia, Hungary, Montenegro, Poland, Romania, Serbia, Slovakia, and Turkey).

The meetings in Copenhagen, Rome and Sofia were supported both technically and financially by the European Centre of Disease Prevention and Control (ECDC). The full RVC attended the meeting in Tashkent; and two RVC members were present on behalf of the full RVC at the meetings in Copenhagen, Rome and Sofia. A full list of all participants at each meeting is provided in annex 2.

## **Conclusions and recommendations**

The subregional meetings were a critical step in initiation of the verification process of measles and rubella elimination in the European Region. The RVC noted that the intercountry meetings provided an excellent opportunity for the WHO Secretariat to share information on the regional verification process, including more details and clarifications on requirements where needed. The meetings were also seen as an opportunity for MS representatives:

- to share experiences;
- to discuss their concerns and challenges in establishing NVCs;
- to define their roles, responsibilities and national and regional support mechanisms; and
- to provide input into the process.

The following summary covers issues discussed at all four meetings and the corresponding recommendations expressed by the attending RVC members.

### *General issues*

The RVC was pleased that 27 of 53 MS in the Region reported that an NVC was already established. The RVC and the Secretariat understood that some MS had waited to obtain information at the subregional meetings before initiating the process.

### *Recommendations*

The RVC and Secretariat urged MS that had not yet established NVCs to form them as soon as possible and provide a list of members and their contact details to the Secretariat. All NVCs and MS were reminded that the first annual status report on measles and rubella elimination was expected by the end of July 2013. The Secretariat agreed to follow up with MS and support them with all available capacities.

The RVC and the WHO Secretariat appreciated the discussions on issues related to policy and technical guidelines, and agreed to communicate concerns raised by some MS regarding current targets, elimination strategies, indicators and criteria for elimination to WHO headquarters and the WHO Regional Office for Europe and their respective groups of technical experts (SAGE and ETAGE).

### *Immunization programmes*

Measles- and rubella-containing vaccines are part of the routine immunization programme in all MS. However, the vaccine schedules and (gender and age) policies of national immunization programmes differ significantly among countries. While overall national vaccination coverage is good, the following challenges remain in achieving the required coverage of  $\geq 95\%$  with two doses of measles-containing vaccine in all communities:

- MS use different methodologies to assess and monitor immunization coverage (e.g. administrative data vs. surveys; coverage with second dose vs. coverage with two doses);
- coverage with the second dose of measles- and rubella-containing vaccines is unacceptably low in many MS; and
- some MS are challenged with subnational areas or subpopulations with less than optimal vaccine coverage. It is also possible that specific populations are not recognized in some MS until they are affected by an outbreak.

### Recommendations

Concerned that information on immunization coverage currently collected by MS might be insufficient and inadequate for documenting elimination, the RVC recommended that the Secretariat follow up on this issue and review information provided by MS through reporting of coverage with vaccines included in national routine immunization programmes.

### *Outbreaks*

The RVC noted reports on measles outbreaks in the Region, documenting that most cases are among unimmunized or incompletely immunized persons, with a diversity of reasons noted by MS.

### Recommendations

- The RVC suggested that MS address suboptimal vaccine coverage rates to prevent further outbreaks. In addition, immunization activities conducted as part of outbreak control measures should be used as a cornerstone for further advocacy for immunization and eventual tailored supplemental immunization activities to address recognized gaps in immunity in the affected and general population.
- MS, especially those affected by nationwide outbreaks, may consider conducting economic and social studies to clarify the burden of measles, rubella and CRS, thereby justifying prioritization of funds and resources.

### *Surveillance*

According to data presented and following discussions with MS, there are significant differences in the quality of surveillance in the Region. The RVC understood that MS consider their national measles surveillance systems to be of high quality and capable of detecting and investigating all suspected cases. At the same time, not all MS had established national rubella and CRS surveillance systems; and a significant number of MS recognized many challenges and the need for improvements in rubella surveillance. Some countries have well-established and functioning surveillance for rubella in pregnancy. Notification of CRS cases exists in all MS, but with a variety of regulations and requirements, and in some cases does not constitute a systematic surveillance system.

Case-based surveillance is critical for elimination and eradication of diseases – and there are currently no other surveillance methods to replace it. Acknowledging the challenges and limitations of rubella case-based surveillance, the RVC underlined that it will be very difficult to achieve verification of rubella elimination without effective case-based surveillance in all MS.

The RVC commended the establishment of a national rubella surveillance system in Germany, and looked forward to the further decisions and activities of health authorities in Belgium, Denmark and France that may lead to establishing rubella surveillance in those countries.

Laboratory support of surveillance for measles and rubella is extremely important for elimination, and all MS had or were developing capacities as recommended for high-quality laboratory-based surveillance in the country and in the Region. The regional network of reference laboratories was functioning well; and genotyping of the measles viruses was improving.



### Recommendations

- The RVC recognized that surveillance quality needs to be improved in several countries, especially reporting and analysis of case-based surveillance data for measles and rubella.
- More efforts are needed to maintain the measles rubella laboratory network and make more genetic data available for rubella in RubeNS database.
- Surveillance systems in countries will clearly benefit from better integration/linkage, in a timely manner, of epi and lab data at country level.
- RVC encouraged WHO and ECDC to continue to work together to improve consistency of case definitions and reporting procedures.

### *Sustainability of immunization programmes*

All Member States made a political commitment to measles and rubella elimination by adapting the WHO Regional Committee and World Health Assembly resolutions. In many countries, however, measles and rubella elimination activities have remained grossly underfunded and underresourced.

The RVC noted that most MS representatives believe in sustainability of their national measles and rubella elimination activities, at least in the medium term. Some MS stressed challenges in vaccine supply related to ensuring sustainable adequate funding and complicated procurement procedures. Both challenges are often out of the influence of technical experts and depend on real commitment of the national authorities.

Concerns were expressed regarding the difficulty of providing evidence for sustainability, as requested for annual reporting to the RVC. Further discussion with the RVC and Secretariat may be helpful in developing additional or alternative indicators of sustainability. At the same time, the RVC and the Secretariat agreed to consider all additional information that MS provide on sustainability of the immunization programme, as a basis for developing additional and alternative indicators.

The RVC strongly supported the position that further evidence on the cost–effectiveness of measles and rubella elimination would be helpful in gaining effective support of decision-makers for the elimination and verification process, particularly in Member States with well-established routine measles and rubella control programmes that are competing with other national health priorities for funding and resources.

### Recommendations

- Every opportunity should be taken by WHO and the RVC to appraise national decision-makers of the implicit obligations to provide national resources, including human resources in support of the agreed elimination goals and activities. The RVC supported the recommendation from countries to send an official letter from WHO, the European Commission and the RVC to the Minister of Health of all MS outlining the issues and underlining their responsibilities.
- MS were encouraged to communicate with WHO about any challenges they were facing regarding the sustainability of their national immunization programmes, especially related to measles and rubella immunization.

### *Public acceptance and communication*

Due to the success of immunization programmes in general, there has been a decline in appreciation of the value of vaccination, by both the public and health care professionals. This kind of attitude

among some health care professionals requires special consideration. This is a common problem and needs to be addressed as a matter of urgency, particularly in some MS. There is a need to increase capacities in the MS and improve strategies for pro-vaccination communications, towards positive behavioural changes regarding immunization. Better training of health care professionals is critical and an urgent concern for many Member States.

The RVC recognized that European Immunization Week (EIW) offers an excellent opportunity to promote the measles and rubella elimination initiative and raise awareness on the needs of the validation process, and examples from countries confirms this.

#### Recommendations

- The Secretariat and MS should take full advantage of EIW, in order to move towards the regional elimination goal of 2015.
- As WHO and ECDC have already developed some tools and strategies for improved immunization communications, the RVC recommended better dissemination and full open access to these tools and strategies to all MS. At the same time, MS were strongly invited to implement these strategies and share their own strategies, tools and experiences. Further development of tools and strategies to address the increasing threat posed by the anti-immunization lobby was encouraged.

#### *Verification process and preparation of ASR*

Clarification and explanation of the reporting requirements for verification are provided in the *Framework for the verification process in the WHO European Region*, and it is critical that MS follow these instructions. The ASR must be authorized by an independent National Verification Committee and include data collected by national programmes in their routine disease surveillance and immunization monitoring process, together with any relevant additional information.

The RVC expressed support for the current documents, indicators and tools established by the WHO Secretariat, including the SharePoint workspace, as these provide a good foundation for monitoring and reporting progress toward measles and rubella elimination.

The RVC acknowledged that preparation of the first report will probably involve an additional workload, but subsequent annual reports should be easier to prepare and should not require any additional work above that required for routine collection, analysis and reporting of national immunization and disease control data. The RVC understood concerns voiced by representatives from several MS over the prospect of a requirement for double- or multiple reporting of national data to a range of national and international bodies and agencies.

In most MS national public health systems already collect and can provide the majority of the required information. However, MS also stressed that some of the required information is not easily available, or cannot be feasibly collected by the systems currently available.

Diversity of existing surveillance and immunization monitoring systems in countries and the manner in which these systems have been developed (to meet national needs over many years) may be a challenge for providing documentation on elimination activities and achievements in the standard format currently required by the verification process.

## Recommendations

- MS were urged to make best use of the Framework and the SharePoint and any suggestions on how they can be further improved should be communicated to the RVC and Secretariat. The RVC and the Secretariat agreed to consider all comments, suggestions and questions raised by MS at the meetings and during the initiation year 2013, as issues to be addressed, incorporated and answered in further development and implementation of verification documents and processes in general.
- The Secretariat would contact some of the MS requesting that they start piloting the annual verification activities by submitting annual reports earlier, in April and May 2013.
- The RVC asked MS for more comprehensive implementation of already existing appropriate legal and technical frameworks and structures in their national immunization programmes and surveillance systems, to ensure that the data required for verification is made available.
- Considering that some MS may face challenges in meeting all of the standard formal documentation requirements and may not provide surveillance indicators as required, the RVC recommended that the Secretariat provide further clarification and explanation on the nature and extent of supplemental and additional evidence, demonstrating the status of measles and rubella elimination activities. Given the diverse nature of national information management systems in use in MS, it will be necessary to address the issue of supplementary information and provide support on a country-by-country basis.
- The RVC and Secretariat will consider modifications of the process and requirements in the upcoming years, based on the actual situation in countries of the Region and WHO requirements towards global measles (and rubella) eradication.

## **Presentations and discussions**

The following summarizes the presentations given at the four meetings. More details can be found in the *Framework for the verification process in the WHO European Region* and the *Measles and rubella elimination annual status report*, for the year 2012 (available at <http://www.euro.who.int/en/what-we-do/health-topics/communicable-diseases/measles-and-rubella/publications/2012/eliminating-measles-and-rubella-framework-for-the-verification-process-in-the-who-european-region>).

## **Plenary Session 1. Regional measles and rubella elimination**

### *Update from the WHO Regional Office for Europe*

Based on information provided by MS through the WHO/UNICEF joint reporting forms (JRF), measles incidence in the Region declined considerably during the past 10 years. The reported case incidence dropped from 703 cases per million in 2002 to only 22 cases per million by August 2012. The percentage of reported cases with laboratory confirmation has increased since 2010, indicating improved case follow up and specimen collection. The reported incidence of rubella also remains low, at 21 cases per million by August 2012. There are major concerns, however, that rubella reporting remains weak in many countries (and non-existent in some), and that rubella remains significantly underreported in the Region.

Reported national routine immunization coverage for both measles and rubella remain high across the Region, but the 2010 goal of measles and rubella elimination was not met. Large outbreaks of both measles and rubella have continued to occur not only in countries considered to have maintained long-term transmission but also in countries previously considered measles-free. Large measles outbreaks occurred in Bulgaria, France and Ukraine during 2010–2012. Epidemiologic analysis shows that in several countries older children and adults are a significant risk group for measles, with 52.2% of reported cases between 2009–2012 occurring in age groups 10 years and above.

In addition to the larger age cohort at risk, immunization programmes are facing additional challenges due to an apparent widespread decline in awareness of the importance and benefits of vaccination among both parents and health care professionals. Many countries are also facing an increasingly active and vociferous anti-vaccination lobby that threatens to reduce vaccine uptake and leave significant pockets of unvaccinated and undervaccinated individuals that remain susceptible to infection. Consequently, improved surveillance and thorough case-based reporting and laboratory confirmation are even more critical for determining the risk groups and targeting measles and rubella elimination activities.

### **Discussion**

Despite the progress that has been made with measles elimination it appears that in addition to importation of measles virus from countries outside the Region there is persistent circulation of strains within Europe, especially its western part. More molecular epidemiology and analysis is required, but it is clear that immunization gaps exist in most countries and it is likely that these susceptible populations will eventually experience measles outbreaks.

The quality and extent of surveillance data on CRS in the European Region remain inadequate for making an accurate assessment of CRS incidence in the Region. Some countries have only recently added CRS requirements to their surveillance systems and laboratory confirmation systems.

For some countries in western Europe it appears difficult to justify the additional expense of comprehensive surveillance for measles and rubella given the current scarcity of funding for health and the nature of national health funding priorities. Although the frequency of outbreaks in any one country is low, the cost of outbreak management in western Europe can be very high. Rubella is seen as a very mild disease, but the management and long-term support costs for CRS cases are high. More information and analysis on cost-effectiveness of enhanced surveillance for measles and rubella in countries with long-standing control programmes may be helpful.

## Plenary Session 2. Process of verification of measles and rubella elimination in the WHO European Region

### *Framework for the verification process: basic principles and components*

The documentation process for verification of Regional measles and rubella elimination is described in the document *Eliminating measles and rubella. Framework for the verification process in the WHO European Region* published by WHO/Europe. The verification process uses an on-going, evidence-based approach that includes annual status reporting and review of progress and indicators. The on-going review will be undertaken by independent experts not involved in the managerial or operational aspects of the national immunization programme, including its laboratory and surveillance components. Evidence-based data are required on population immunity, disease epidemiology, and the quality of surveillance. Additional evidence is requested on monitoring sustainability of the national immunization programme and public acceptance of measles and rubella elimination goals and achievements. The six components for annual reporting of the status of verification are listed in the below table.

Components	Possible data source
Population immunity against measles and rubella	WHO/UNICEF Joint Reporting Form
Epidemiology of measles, rubella and CRS during the previous 36 months	Joint Reporting Form, routine surveillance; sentinel sites (CRS)
Molecular epidemiology of measles and rubella viruses	Routine surveillance, laboratory reports
Performance of measles, rubella and CRS surveillance	Routine surveillance, laboratory reports
Sustainability of the national immunization programme	WHO/UNICEF Joint Reporting Form
Public acceptance of the measles/rubella elimination goal	Ad hoc surveys, operational research, public information sources

The following schedule of activities for establishing the verification process was developed.

Jan 2012	Feb-Mar 2012	Apr-Aug 2012	Sep-Dec2012	Jan-Dec 2013
First meeting of Measles and Rubella Regional Verification Committee (RVC)	Preliminary feedback to countries. Develop guidelines for documenting verification	Finalization of the Annual Progress Report format	Joint RCV/NVC meeting (Tashkent, October 2012)	Joint RVC/NVC meetings (Copenhagen, January 2012; Rome & Sofia, February 2013)
	Establishing national verification committees (NVC)		Initiate collection and verification of national data	Collection and verification of national data. Deadline for first

			annual status report 31 July 2013
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### Discussion

Data on measles and rubella seroprevalence that results from serosurveys can be submitted by countries as supporting evidence, providing the data and the nature of the exercise are fully explained. Several countries in Europe already have many years of seroprevalence data from serosurveys that can be used as supportive evidence, but all countries should attempt to provide as much of the documentation as possible described in the Measles and Rubella Elimination Framework.

The elimination processes for measles and rubella are not strictly synchronized, and it is possible that because of differences between the pathogens and in the efficacy of the different vaccines, elimination of measles and rubella will not be achieved at the same time. For this reason the reporting form requests separate information on the status of measles and rubella elimination.

### Definitions and terminology to be used in the Regional verification process

Disease elimination is defined as: “the absence of endemic measles or rubella cases in a defined geographical area for a period of at least 12 months, in the presence of a well-performing surveillance system.” Endemic transmission is considered to be the continuous circulation of a virus strain or strains in a defined geographical area or epidemiologically linked areas. Endemic transmission is considered to have been re-established when epidemiologic and laboratory evidence indicates uninterrupted virus circulation for a period of 12 months or more in an area where disease was previously eliminated. Regional elimination can be declared only after 36 months of the absence of detected endemic measles or rubella in all MS of the WHO European Region.

In line with the regional surveillance guidelines, cases of measles and rubella are classified as follows.

<b>Suspected measles case:</b>	a case with signs and symptoms consistent with measles clinical criteria: <ul style="list-style-type: none"> <li>– fever and maculopapular rash <i>and</i></li> <li>– cough or coryza (runny nose) <i>or</i></li> <li>– conjunctivitis (red eyes).</li> </ul>
<b>Suspected rubella case:</b>	a case with signs and symptoms consistent with rubella clinical criteria: <ul style="list-style-type: none"> <li>– maculopapular rash and cervical, suboccipital or post-auricular adenopathy, or arthralgia/arthritis</li> </ul>
<b>Laboratory-confirmed measles case:</b>	a suspected case that meets the laboratory criteria for measles case confirmation
<b>Laboratory-confirmed rubella case:</b>	a suspected case that meets the laboratory criteria for rubella surveillance case confirmation
<b>Epidemiologically linked measles case:</b>	a suspected case that has not been adequately tested by laboratory and that was in contact with a laboratory-confirmed measles case 7–18 days before the onset of symptoms.
<b>Epidemiologically linked rubella case:</b>	a suspected case, that has not been adequately tested by laboratory, and that was in contact with a laboratory-confirmed rubella case 12–23 days prior to onset of the disease.
<b>Clinically compatible measles case:</b>	a suspected case that has not been adequately tested by laboratory and has not been epidemiologically linked to a confirmed measles case.
<b>Clinically compatible rubella case:</b>	a suspected case that has not been adequately tested by laboratory and has not been epidemiologically linked to a confirmed rubella case.

<b>Discarded case:</b>	a suspected case that was investigated and discarded, either through negative results of adequate laboratory testing for measles and rubella or by an epidemiological link to a laboratory-confirmed case of another disease; in addition, IgM-positive cases in recent vaccine recipients can be discarded if they meet all of the following criteria: <ul style="list-style-type: none"> <li>– history of vaccination with relevant vaccine 7 days to 6 weeks prior to specimen collection;</li> <li>– onset of rash 7–14 days after vaccination;</li> <li>– no evidence of virus transmission revealed by active search in community;</li> <li>– no history of travel to areas in which the virus is known to be circulating.</li> </ul>
<b>Imported case:</b>	a case exposed outside the country during the 7-18 days (measles) or 12–23 days (rubella) prior to rash onset as supported by epidemiological and/or virological evidence.
<b>Import-related case:</b>	a locally-acquired measles or rubella infection occurring as part of a chain of transmission originating in an imported case, as supported by epidemiological and/or virological evidence.

## Discussion

Meeting participants from most countries were familiar with the terminology and have been using the provided case definitions. The only exception is the definition of ‘discarded case’. Several countries have not previously considered defining or collecting information on all suspected measles or rubella cases that were subsequently discarded. In some countries collecting this information will require the collation of data from two or more different sources.

Final case classifications for measles and rubella must be based on linked laboratory, clinical and epidemiological criteria. All of these criteria, including requirements for and interpretation of laboratory results have been provided by WHO in the various surveillance and laboratory guidelines. Countries should follow the most appropriate algorithm for final case classification based on characteristics of the suspected case. Once an outbreak has been confirmed no further samples should be tested except when an outbreak continues for more than 3 months, at which time additional representative samples may be collected and tested to confirm the nature of the on-going outbreak.

It is recognized that using standardized case definitions and a systematic reporting framework results in some cases being omitted from national reports, but this number is likely to be very low. The programmatic advantages of having a single standardized system across the Region far outweigh the disadvantage of missing a very small number of cases. It should also be noted that the standard case definitions only apply to clinically suspected cases; they do not apply to the results of antibody screening programmes. For the reporting system to work effectively it is essential to be able to link clinical and laboratory data through the unique epidemiological identification number assigned by the national immunization programme. This number is assigned by the national programme only to suspected cases of measles or rubella.

There are some differences between the case definitions provided by WHO and those provided by ECDC. When reporting to WHO or ECDC the countries select which case definition to use. WHO requires countries to report on all suspected cases of measles and rubella, whereas ECDC requires reporting of confirmed cases only. This is a complex issue, and WHO and ECDC have been working together to solve this problem.

Reporting of unconfirmed suspected cases is a challenge for some countries and further guidance on how to report or discard these cases would be helpful. There is also a level of concern over the investigation and reporting of vaccine-modified measles cases that present with atypical symptoms. It is possible that these cases may become a greater problem in future.

Several countries have more than one system for investigation and reporting of suspected measles and rubella cases. National reporting systems collect aggregated or case-based data, but the latter is critical for diseases targeted for elimination and eradication. It is essential that at national level the clinical, epidemiological and laboratory information is merged into a single dataset. This is required for verification of the measles/rubella elimination process, but more importantly, is essential for national programme managers to analyse, assess and report on performance of national programmes.

Final case classifications for measles and rubella are based on linked laboratory, clinical and epidemiological criteria. All of these criteria, including requirements for elimination, have been provided by WHO in the various surveillance and laboratory guidelines. In addition, surveillance systems must be capable of classifying cases by origin of infection, in order to document the absence of endemic cases. Countries should follow the algorithm for final case classification based on characteristics of a case.

Once an outbreak has been confirmed, there is no further need for additional laboratory testing. If an outbreak continues for more than 3 months or other territories have been affected, additional representative samples should be collected and tested to confirm the nature of the on-going outbreak.

All definitions provided through WHO are for surveillance purposes only and are not necessarily appropriate for clinical diagnosis. All countries should be reporting measles and rubella data according to the surveillance definitions provided, regardless of the case definitions in use for clinical diagnosis. It is accepted that the positive-predictive value of IgM testing may be low, particularly during an outbreak, but it is the standard laboratory confirmation method that can be applied on a global basis and experience has shown that it is appropriate for surveillance purposes. For routine reporting it is strongly recommended that countries only report laboratory results from suspected cases and not random screening programmes.

Despite the calls for improved rubella surveillance, use of data collected through routine screening of pregnant women in the absence of clinical criteria for rubella is strongly discouraged. If testing in pregnancy was conducted with standard rubella IgM testing kits used for routine surveillance, these results can be false positive. Any suspected rubella case in pregnancy requires specific clinical and laboratory investigation, and it is out of the scope of disease surveillance.

#### *Essential criteria and performance indicators*

The criterion for verification of measles and rubella elimination in the WHO European Region is defined as: "Absence of endemic measles and rubella cases in all Member States for a period of at least 36 months from the last known case, due to complete interruption of endemic virus transmission, in the presence of high-quality surveillance." In addition, at least 95% of the population should be protected against measles and rubella. Validating achievement of these criteria depends on the information documented in the NVC annual reports. Sources for this information



may come from routine immunization coverage reported through the annual WHO/UNICEF Joint Reporting Form (JRF). Other sources of information on population immunity may include routine and sentinel diseases surveillance data, laboratory reports, and data from other surveys or operational research providing additional information to supplement routine reporting. Carefully planned seroprevalence studies could be conducted, for example, to supplement existing surveillance and immunization coverage reports. However, serosurveys are costly and should not be conducted routinely. Vaccine supply reports and vaccination coverage surveys can also supplement and help to verify the reliability of routine reported data.

Standard surveillance performance indicators include:

- timeliness and completeness of reporting;
- laboratory investigation rate;
- rate of discarded cases;
- documentation on chains of transmission and outbreaks with genotype dates;
- documentation on sources of infection; and
- adequacy of case-based investigation.

The surveillance performance target for timeliness and completeness of monthly reporting from reporting unit to national level is >80%. Case-based data should be reported to the WHO European Region monthly by the 25th of the following month. In addition, >80% of clinical measles and rubella cases should be tested by a proficient laboratory. To monitor the activity of case-based surveillance, countries should also report the number of discarded measles and rubella cases per 100 000 population, even in the absence of diseases. The elimination target for the rate of discarded cases is at least 2 discarded measles/rubella cases annually per 100 000 population nationally and in >80% of subnational administrative units.

In terms of measuring the adequacy of investigation, countries should conduct adequate investigations of suspected cases of measles and rubella within 48 hours of notification in at least 80% of reported suspect cases. The criteria and performance indicators for measles and rubella elimination are described in detail in: *Eliminating measles and rubella. Framework for the verification process in the WHO European Region*.

### **Discussion**

Countries that use a very broad 'rash and fever' suspected case definition can easily meet the required discarded case rate, as most suspected cases will be discarded. MS that have adopted more rigorously defined 'suspected measles' and 'suspected rubella' case definitions will discard fewer suspected cases and find it more difficult to meet the rate requirement. It must be borne in mind, however, that for many countries changing case definitions requires a change in national legislation, which can be a very lengthy and expensive process. There are many remaining questions at national level over who is responsible for collecting full data on discarded cases and how this data will be linked with other surveillance information. It is important that countries provide feedback to the Secretariat on how best to make the technical requirements for validation more appropriate to and compatible with the situation experienced in countries. This remains a learning process for all concerned and comments and suggestions on how to improve the process are welcome.

It is recognized that the criteria are territory specific – internal circulation of virus can more easily be established in large countries than in small countries. Neighbouring small countries can establish circulation across national borders. Greater specification and definition may be helpful for the reporting of data on specific subpopulations or groups that may span national borders. From documentation provided it is not clear that a distinction is drawn between ‘migrant’ and ‘immigrant’ populations, for example. In several countries these represent very different groups presenting different epidemiological profiles and risks. The three-year period between the last detected case and verification of elimination should provide enough time for any continuing circulation to be detected, regardless of whether it is in a single large country or in a group of neighbouring small countries. Verification is an on-going process that will most likely be modified as experience is gained. Countries are welcome to discuss and comment on the process.

*Establishment of national verification committees – terms of reference and relationship with the RVC and the WHO Secretariat*

The NVC is the national body composed of experts appointed by the Ministry of Health, who are responsible for verifying and documenting evidence on the status of measles and rubella elimination in their respective countries. The mission of the NVC is to:

- establish, review and monitor the verification process in the respective country;
- prepare and submit a national status report to the WHO Secretariat; and
- advocate for improving vaccination and surveillance.

The NVCs should report to respective health ministers and to the RVC through the WHO Secretariat. An NVC does not declare measles and rubella elimination at the national level. It is the mission of the RVC to declare elimination at regional level.

It is recommended that NVCs are composed of a maximum of 5 members, including a designated chairperson, a secretary, and 2–3 additional members. The members should be recognized specialists from various fields, such as clinical medicine, laboratory science, epidemiology and other public health specialists. Participation in the NVC is on a voluntary basis. The members should not be involved in the managerial or operational aspects of their respective immunization programmes, or in laboratory or surveillance systems associated with measles and rubella elimination. Members should not have direct responsibility for achievement of the goal of elimination at either regional or national levels. The functions of the NVC include the following:

- prepare the plan of action for the documentation and verification of measles and rubella elimination in the country (this can be conducted in consultation with the immunization programme managers);
- define responsibilities, products, resources and a time frame for activities;
- compile and analyse the information from the national immunization programme, national surveillance institutions, and surveillance laboratories;
- propose alternative solutions when data on the components of the verification process are not available;
- advise the national immunization programme, laboratory, surveillance teams and the Ministry of Health on the verification process, requirements and goals;

- assess available evidence and progress on achieving the elimination goals (if deemed necessary and appropriate, NVCs should conduct field visits to monitor progress, assess quality and validate their analysis and conclusions);
- prepare and submit the Measles and Rubella Elimination Annual Status Report to national health authorities, who will then officially present the documentation to the WHO Secretariat.

The VPI programme of the WHO Regional Office for Europe, as Secretariat of the RVC, is the medium through which the RVC and NVCs communicate. Regional RVC meetings will be organized by the Secretariat, at least once a year. Additional regional or subregional meetings may be organized as needs arise or at the request of the RVC.

### **Discussion**

There was a common concern among representatives from smaller countries over the requirement for NVC members to be experts not formally involved in implementation of the national immunization programme. Many countries feel they lack sufficient experts with both the technical background and the professional experience to meet this requirement. However, all countries in the Region successfully established appropriate polio National Certification Committees, for which the same requirement for lack of involvement in implementation polio eradication activities was enforced. While the restrictions thus placed on smaller countries is recognized, it is essential that the potential for a conflict of interests is avoided. Clearly the head of the NVC must not be responsible for implementing operational aspects of the immunization programme. There are no restrictions on members of the NVC being members of other professional or scientific committees, providing they have no role in operational implementation of measles and rubella elimination activities, or of being experts from other countries. It must be remembered, however, that it is the NVC and not the Ministry of Health or the national immunization programme that is responsible for preparing and submitting the country's annual verification report.

There was considerable discussion over what may or may not constitute a conflict of interests. There is a standard WHO *declaration of conflict of interests* form that countries may use as a template for establishing their own form if it is felt one is necessary.

Establishment of the NVC is a national function and it is expected that funding and resources will be provided by national authorities. NVC members function on a voluntary basis; there should be no salary or fees other than reimbursement for personal expenses incurred. It should also be clear that NVC members are not expected to undertake surveillance activities themselves, but should be in a position to review surveillance activities and results.

### **Group work Session 1: Performance indicators of measles and rubella elimination and availability of relevant data in participating Member States**

In each meeting participants divided into three or four groups to discuss the following:

- national goals and strategies
- population immunity measures
- surveillance performance indicators
- progress towards elimination goals.

## Feedback from the groups

**Meeting in Tashkent** (Armenia, Azerbaijan, Belarus, Georgia, Kazakhstan, Kyrgyzstan, Republic of Moldova, Russian Federation, Tajikistan, Turkmenistan, Ukraine, Uzbekistan)

- All countries have goals and strategies in place for measles elimination and were at varying stages of implementation.
- All have active programmes to improve population immunity, disease surveillance systems and laboratory capabilities to support the elimination goals.
- All, with the exception of Ukraine, were at the time of the meeting achieving high immunization coverage, although in the past some countries experienced temporary declines, primarily from vaccine shortages.
- Nine of the 12 countries had established their NVC: the remaining three countries were in the process of establishing their committees.

**Meeting in Copenhagen** (Austria, Belgium, Denmark, Estonia, Finland, Germany, Ireland, Iceland, Latvia, Lithuania, Luxembourg, the Netherlands, Norway, Sweden, Switzerland, United Kingdom)

- Most of the countries have national strategies defined, either as distinct strategies or combined in broader national health strategies. For some representatives, however, there was some confusion over the definition of a national strategic plan for immunization. Some were concerned that although a national strategy exists there is no single document describing this strategy.
- The issue of completeness of reporting is complex and there is a need to clearly define the level of reporting within countries that can be used to document completeness. Information exists on the number and rate of discarded cases, but additional work will be required to collate, analyse and report this information.
- All MS in this meeting have high levels of immunization coverage and long-standing surveillance systems, but some have no mandatory reporting for rubella and are unlikely to adopt this in the near future.
- There remains an issue of how to exchange and collate surveillance information generated by different components of the national surveillance system.
- There was concern over discrepancies between national data and the WHO country profile data. Additional work is required to compare the data sets and make them compatible.
- Relatively few of the countries had yet to formally establish their NVCs. Those that had not planned to do so following this meeting.

**Meeting in Rome** (Cyprus, France, Greece, Israel, Italy, Malta, Portugal, Slovenia, Spain)

- Although there is political commitment to measles and rubella elimination, this was not reflected in the level of funding and resources provided to implement the programmes.
- Relatively large measles- and rubella-susceptible groups continue to exist in many countries. These groups include young adults and a range of different age and social groups, reflecting sequential changes that have occurred in national immunization schedules over the past few years.

- It remains very difficult to monitor immunization coverage and deliver immunization services to some immigrant, migrant and other marginalized groups. Solutions need to be found to the problem of providing immunization services to these groups.
- A large numbers of indicators are being requested and some will be difficult to collect, but many were already being collected by national programmes. Information on discarded cases and completeness of reporting may be difficult to collect, and the timeliness of investigation criterion will be difficult to achieve.
- The verification process requires national resource allocation at a time when immunization services are competing for resources with other health programmes. The priority level of measles and rubella elimination needs to be raised at national level to ensure adequate resources.

**Meeting in Sofia** (Albania, Bulgaria, Croatia, Hungary, Montenegro, Poland, Romania, Serbia, Slovakia, Turkey)

- All countries have immunization plans and standard operating procedures but may lack defined elimination strategies, particularly for rubella. For some a new legal instrument will be required to establish an elimination strategy.
- All countries use the measles/mumps/rubella (MMR) vaccine and several had recently conducted supplemental immunization activities (SIAs) using MMR.
- Most countries now have mandatory reporting for measles and rubella, but not CRS. CRS surveillance continues to be a challenge as case investigation and data collection is often incomplete.
- Most of the requested performance indicators are feasible, but the timeliness and completeness indicators will be a challenge to achieve.
- To clarify the documentation process, the measles and rubella elimination annual status report was reviewed and the SharePoint workspace tool was demonstrated.

The documentation process provides a record on the progress toward elimination by using the data compiled by national immunization programmes, the surveillance system and other relevant information collected by the health system. These data are verified as complete and accurate by the NVC, and reported on an annual basis to the RVC through the WHO Secretariat. The RVC then determines if the NVC annual reports are valid, complete, representative and consistent. The first annual NVC report, to address data for the period 2010–2012 was due by 31 July 2013. Thereafter, the annual NVC documentation report will cover only a one-year period.

The Measles and Rubella Elimination Annual Status Report includes three sections.

- The national verification committee status and its activities: describes the members of the NVC, their activities during the year, and a summary of the status of elimination using supportive evidence.
- The country measles and rubella profile: provides the national immunization programme goals and strategies, and describes the routine immunization schedule and the surveillance system. This section also provides an account of progress towards elimination in terms of vaccination coverage and the incidence of measles and rubella, and the number of CRS cases.

- An update of general programme activities: this reports the general programme activities concerning immunization programme history and any policy changes, routine immunization coverage and the methods used for determining the coverage. This section also provides any additional information, such as supplemental immunization data, surveys and studies which support the elimination verification process.

The annual report also requests information on the sustainability of the national immunization programme in areas such as vaccine supply and programme funding from the government. A request is also made for documentation of evidence of general public and health care professional acceptance for measles and rubella elimination. Examples of evidence of acceptance include: surveys, and advocacy, information and educational materials developed. The NVC annual report concludes with a description of the NVC plan for the next year. Further detail on tasks and responsibilities, definitions and instructions on completing the annual report are provided in the Measles and Rubella Elimination Annual Status Report 2012, which was provided to the participants.

### **Discussion**

Ideally the NVC and the national authorities should all have access to the same data, and the national authority should be responsible for all data entry, with the data being reviewed by the NCV. Systems are different in different countries, so MS should adopt an approach most suited to their conditions. Regardless of the system followed, the NVC should verify all information for submission, and the national authorities should authorise reporting of the data. There is a well-established system for polio certification reporting that is followed by all countries. The measles/rubella reporting system should be similar, but probably more flexible in the extent and nature of information that can be submitted. The WHO Secretariat is primarily interested in the report, not in the steps leading up to the report, and countries are free to follow the system most appropriate to their circumstances.

There was discussion on the requirement for reporting MMR coverage. For the purposes of the first Annual Status Report countries should provide information on MMR vaccine coverage with the first dose and coverage with the second dose by age cohort, if this information is available. The global requirement is for coverage with 2 doses of measles-containing vaccine (MCV) and the data provided by countries should reflect this requirement.

The first report was to include all data from the past 3 years (2010 – 2012). Countries were urged to send their NVC-accepted reports to the Secretariat as soon as possible and not to wait for the deadline.. For the first report all available data from 2010 to 2012 was to be submitted. Subsequent reports will only require information from the most recent year. Submitted reports should be signed by the NVC members, either electronically for electronic submissions, or physically for hard-copy submissions. It would be beneficial to the regional review process if countries could also submit a short summary of measles/rubella activities that took place between the initiation of national measles and rubella vaccination and 2010.

The proposed verification process is based on the approach successfully used for certification of polio elimination, but remains a process in development. The proposed system had yet to be tested and the first Annual Status Report was to be the first test of this system. Experience gained by all will be instrumental in subsequent review and possible modification of the report requirements.

It was recognized that the request for additional supporting information remains unstructured, because of the different data collection and reporting systems in place in the 53 different MS. Space is provided to report on specific additional activities and results of studies, but without a specific reporting format as yet. Again, as experience is gained with verification status reporting it may be possible to introduce a more structured approach to the reporting of additional information.

*Barriers and solutions for immunizing hard to reach communities*

(presented by Svetla Tsoлова and Irina Dinca, ECDC, only at the meeting in Sofia).

In many European countries vaccines continue to be underused. The reasons for this are complex, but false beliefs, ignorance and lack of advocacy are often at the root of failing vaccination strategies. Information dissemination and communication play key roles in increasing the use of vaccines and in strengthening immunization programmes. Improving knowledge about immunization and confidence in vaccines among decision-makers, the general public and health care workers remains a major goal in the fight against infectious diseases. The VENICE II Consortium has produced a review of outbreaks and barriers to MMR vaccination coverage among hard-to reach populations in Europe (published by ECDC). This review includes key recommendations for action to improve vaccine coverage among hard-to-reach populations and to decrease the risk of measles and rubella outbreaks.

ECDC is also developing a toolkit for engaging in social media activities promoting MMR vaccination called "Let's talk about protection". The toolkit is being tailored to specific national requirements in Bulgaria, the Czech Republic, Hungary and Romania where it will be tested.

**Discussion**

Almost all countries in the Region face some level of vaccine refusal, from a range of different groups, including hard-to-reach communities. It is essential that any activities undertaken to reach these communities avoid discrimination and alienation of the communities. It is also important to identify the highest priority issues in each individual country and address these first, rather than simply tackling those problems that are easiest to solve.

**Group work session 2: Priority actions to meet the 2015 elimination goal**

Participants were again divided into three or four groups to discuss the following:

- priority actions to maintain and increase vaccination coverage among children and adults;
- priority actions to improve and sustain surveillance for measles and rubella/CRS;
- outline of action plan for documentation and verification of measles and rubella elimination
- finalization, endorsement and feedback to WHO Secretariat.

*Feedback from the groups*

Meeting in **Tashkent** (Armenia, Azerbaijan, Belarus, Georgia, Kazakhstan, Kyrgyzstan, Republic of Moldova, Russian Federation, Tajikistan, Turkmenistan, Ukraine, Uzbekistan).

- More work is needed to gain support from the medical professionals, political leaders and the public for measles and rubella elimination.
- More effort is needed to make the measles and rubella elimination goal a more recognized priority of the respective ministries of health.

- The importance of improving awareness of measles, rubella and CRS must be emphasized to clinicians to reinforce the message that measles and rubella remain a public health threat.
- More effort is needed to improve CRS case detection and surveillance.
- NVC could be included in the development of plans of action, assessing surveillance quality, and identifying additional resources for the elimination effort.

Meeting in **Copenhagen** (Austria, Belgium, Denmark, Estonia, Finland, Germany, Ireland, Iceland, Latvia, Lithuania, Luxembourg, The Netherlands, Norway, Sweden, Switzerland, United Kingdom)

- To improve coverage, particularly among underimmunized subpopulations it may be necessary to decrease the age at which the first dose of MMR is given. If the dose is given before 12 months of age, this dose should not be considered as part of the individual vaccination record, and a person should subsequently receive two doses as per the national schedule.
- Although coverage is high for the first dose (MCV1), coverage drops for the second dose (MCV2). This can be addressed by enforcing MCV2 immunization through mandatory school-entry immunization activities. There are also large subpopulations, such as young adults and health care workers (HCWs), among which MCV2 coverage is low enough to place the group at risk of outbreak. These can be addressed by providing more information on immunization and through targeted SIAs.
- There is underreporting of cases, particularly during outbreaks. This needs greater advocacy for surveillance through engaging key stakeholders and improved HCW training on immunization. Improved surveillance information recording and exchange through better reporting software would also improve the situation.
- Documenting rubella elimination will be difficult in MS that have no mandatory rubella reporting; and some other form of documentation will be required.
- A joint letter from WHO and ECDC to MS ministries of health promoting immunization training and sharing of information may be helpful.
- There is a need to address the anti-vaccination groups, parents refusing to vaccinate their children and HCWs failing to support immunization services.
- A strategy is needed to increase awareness, provide information and educate the public and HCWs on both the benefits of vaccination and dangers associated with vaccine-preventable diseases. Basic information and clear messages could be provided by national authorities in different languages as necessary.

Meeting in **Rome** (Cyprus, France, Greece, Israel, Italy, Malta, Portugal, Slovenia, Spain)

- Different countries have different specific problems with regard to increasing vaccine coverage and there is a need to look closely at the roots of the problems. There are many possible solutions, but most only apply to specific problems.
- There remain substantial subpopulations with suboptimal vaccine coverage and these are the highest priority for immunization, and the most difficult to reach. Opportunities do exist for providing vaccine to some of these groups, at entrance to school or the military for example, and approaches should be taken to address as many of these subpopulations as possible.



- There is an underreporting of measles in several countries. Greater efforts are required to raise awareness of the need to report suspected measles cases to the national programme.
- Surveillance for measles is better than surveillance for rubella, but for both collection of data on discarded cases is a challenge with the current reporting systems. The move towards establishment of national integrated surveillance systems offers the possibility of improving surveillance for all vaccine-preventable diseases.
- There is a need for more technical meetings on measles and rubella elimination together with workshops on all aspects of the elimination initiative. Improved information exchange within national health sectors on the goals, targets and required resources is also needed.
- All countries should make use of the opportunities provided by European Immunization Week to promote immunization services and goals.
- The economic crisis is resulting in cuts to immunization programmes that may be reflected in reduced performance in the future.
- There is an urgent need for strong advocacy at high political levels to prevent further cuts to immunization services. Some data on the economic benefits of vaccination may be helpful in persuading national decision-makers.
- The NVC should provide support in development of action plans and collection of background documentation.

Meeting in **Sofia** (Albania, Bulgaria, Croatia, Hungary, Montenegro, Poland, Romania, Serbia, Slovakia, Turkey)

- Greater effort is needed to achieve and keep  $\geq 95\%$  coverage in the general population and in subpopulations.
- Education of ethnic minorities on the value of vaccination is important in many countries. For example, ECDC has established a project on educating health care providers in communicating with Roma populations.
- It is essential to identify hard-to-reach populations and tailor strategies specifically to them.
- The anti-vaccination movement is growing, especially among homeopathy, anthroposophical and religious groups. Strategies are needed to deal effectively with the anti-vaccination movement.
- Efforts to integrate surveillance and immunization monitoring data by online electronic personal databases are ongoing in many countries, but rubella surveillance, integration of laboratory data and information from private health care institutions remains a challenge.
- Case-based surveillance is expensive and requires more financial support from national governments. In many cases the quality of data is not yet strong enough for verification purposes.
- There is a need for RVC members to visit countries to raise awareness of the verification process.

## Annex 1: Provisional programmes (by meeting)

### Intercountry Meeting on Verification of Measles and Rubella Elimination in the WHO European Region , 23-24 October 2012, Tashkent, Uzbekistan

#### 23 October 2012

##### Plenary session 1: Regional measles and rubella elimination

09.00 – 09.30	<b>Opening</b>  <i>Ministry of Health, Uzbekistan</i>  <i>Dr Dina Pfeifer, WHO Regional Office for Europe</i>  <i>Prof. Susanna Esposito, RVC chair</i>
09.30 – 10.15	<b>Regional measles and rubella elimination. Update from the WHO Regional Office for Europe.</b>  <i>Dr Dina Pfeifer, WHO Regional Office for Europe</i>  Discussion

##### Plenary Session 2: Process of verification of measles and rubella elimination in the WHO European Region

10.15 – 11.00	<b>Framework for the verification process: basic principles and components</b>  <i>Dr Sergei Deshevoi, WHO Regional Office for Europe</i>  Discussion
11.30 – 12.00	<b>Definitions and terminology to be used in the Regional verification process</b>  <i>Dr Sergei Deshevoi, WHO Regional Office for Europe</i>  Discussion
12.00 – 12.30	<b>Essential criteria and performance indicators</b>  <i>Dr Dragan Jankovic, WHO Regional Office for Europe</i>  Discussion
12:30 – 13:30	<b>Lunch</b>
13:30 – 14:00	<b>Establishment of National verification committee – terms of references and the relationship with the RVC and the WHO secretariat</b>  <i>Dr Mark Muscat, WHO Regional Office for Europe</i>  Discussion

##### Group works session 1: Performance indicators of measles and rubella elimination and availability of relevant data in participating Member States

Meetings on verification of measles and rubella elimination in the WHO European Region

- 14:00 – 16:00
- i. National goals and strategies
  - ii. Population immunity measures
  - iii. Surveillance performance indicators
  - iv. Progress towards elimination goals

16:30 – 17:15                    **Feedback from group work**

**24 October 2012**

9:00 – 9:45                    **Documentation process. Measles and rubella elimination annual status report**

*Dr Mark Muskat, Ajay Goel, WHO Regional Office for Europe*

Discussion

Group works session 2: Workplan for verification of measles and rubella elimination in participating Member States

- 09:45 – 12:45
- i. Identify priority areas
  - ii. Develop outline of action plan for documentation and verification of measles and rubella elimination
  - iii. Finalization, endorsement and feed back to WHO Secretariat

12:15 – 12:45                    **Feedback from group work**

12:45 – 13:00                    **Closure**

**Verification of Measles and Rubella Elimination in the WHO European Region. A joint WHO and ECDC Subregional Meeting 29–30 January 2013, Copenhagen, Denmark**

**29 January 2013**

Plenary session 1: Regional measles and rubella elimination

09:00 – 09:30                    **Opening**

*Dr Guenaël Rodier, WHO Regional Office for Europe*

*Dr Pierluigi Lopalco, VPD program coordinator, ECDC*

*Dr Günter Pfaff, RVC member*

**Regional measles and rubella elimination. Update from the WHO Regional Office for Europe.**

*Dr Dina Pfeifer, WHO Regional Office for Europe*

Discussion

Plenary Session 2: Process of verification of measles and rubella elimination in the WHO European Region

10:45 – 11:30                    **Framework for the verification process: basic principles and components**

*Dr Sergei Deshevoi, WHO Regional Office for Europe*

Discussion

- 11.30 – 12.00                    **Definitions and terminology to be used in the Regional verification process**  
  
*Dr Sergei Deshevoi, WHO Regional Office for Europe*  
  
Discussion
- 12.00 – 12.30                    **Essential criteria and performance indicators**  
  
*Dr Dragan Jankovic, WHO Regional Office for Europe*  
  
Discussion
- 12:30 – 13:00                    **Establishment of National verification committee – terms of references and the relationship with the RVC and the WHO secretariat**  
  
*Dr Mark Muscat, WHO Regional Office for Europe*  
  
Discussion

Group works session 1: Performance indicators of measles and rubella elimination and availability of relevant data in participating Member States

- 14:00 – 16:00                    v.    **National goals and strategies**  
vi.    **Population immunity measures**  
vii.    **Surveillance performance indicators**  
viii.    **Progress towards elimination goals**

16.30 – 17.15                    **Feedback from group work**

**30 January 2013**

- 9:00 – 9:45                    **Documentation process. Measles and rubella elimination annual status report**  
  
*Dr Mark Muscat, Ajay Goel, WHO Regional Office for Europe*  
  
Discussion

Group works session 2: Priority actions to meet 2015 elimination goal

- 09.45 – 12.00                    i.    **Identify priority actions to maintain and increase vaccination coverage among children and adults**  
ii.    **Identify priority actions to improve and sustain surveillance for measles and rubella/CRS**  
iii.    **Develop outline of action plan for documentation and verification of measles and rubella elimination**  
iv.    **Finalization, endorsement and feed back to WHO Secretariat**

13:00 – 13:30                    **Feedback from group work**

13:30 – 14:00                    **Closure**

14:00 – 16:00                    **RVC private meetings with WHO Secretariat and ECDC**

**Verification of Measles and Rubella Elimination in the WHO European Region. A joint WHO and ECDC Subregional Meeting  
12–13 February 2013, Rome, Italy**

**12 February 2013**

Plenary session 1: Regional measles and rubella elimination

- 09.00 – 09.30                    **Opening**
- Dr Maria Grazia Pompa, Ministry of Health, Italy*
- Dr Pierluigi Lopalco, VPD program coordinator, ECDC*
- Dr Robin Biellik, RVC member*
- 09.30 – 10.15                    **Regional measles and rubella elimination. Update from the WHO Regional Office for Europe.**
- Dr Dragan Jankovic, WHO Regional Office for Europe*
- Discussion

Plenary Session 2: Process of verification of measles and rubella elimination in the WHO  
Region

European

- 10.45 – 11.30                    **Framework for the verification process: basic principles and components**
- Dr Sergei Deshevoi, WHO Regional Office for Europe*
- Discussion
- 11.30 – 12.00                    **Definitions and terminology to be used in the Regional verification process**
- Dr Sergei Deshevoi, WHO Regional Office for Europe*
- Discussion
- 12.00 – 12.30                    **Essential criteria and performance indicators**
- Dr Dragan Jankovic, WHO Regional Office for Europe*
- Discussion
- 12:30 – 13:00                    **Establishment of National verification committee – terms of references and the relationship with the RVC and the WHO secretariat**
- Dr Vusala Allahverdiyeva, WHO Regional Office for Europe*
- Discussion

Group works session 1: Performance indicators of measles and rubella elimination and availability of relevant data in participating Member States

- 14:00 – 16:00                    **ix. National goals and strategies**
- x. Population immunity measures**
- xi. Surveillance performance indicators**
- xii. Progress towards elimination goals**
- 16.30 – 17.15                    **Feedback from group work**

**13 February 2013**

9:00 – 9:45 **Documentation process. Measles and rubella elimination annual status report**

*Dr Sergei Deshevoi, WHO Regional Office for Europe*

Discussion

Group works session 2: Priority actions to meet 2015 elimination goal

- 09.45 – 12.00
- v. Identify priority actions to maintain and increase vaccination coverage among children and adults
  - vi. Identify priority actions to improve and sustain surveillance for measles and rubella/CRS
  - vii. Develop outline of action plan for documentation and verification of measles and rubella elimination
  - viii. Finalization, endorsement and feed back to WHO Secretariat

13:00 – 13:30 **Feedback from group work**

14:00 – 16:00 **RVC private meetings with WHO Secretariat and ECDC**

**Verification of Measles and Rubella Elimination in the WHO European Region. A joint WHO and ECDC Subregional Meeting 27–28 February 2013, Sofia, Bulgaria**

**Wednesday 27 February 2013**

Plenary session 1: Regional measles and rubella elimination

09.00 – 09.30 **Opening**

*Ministry of Health of Bulgaria*

*Dr Svetla Tsoleva, ECDC*

*Dr Andrey Lobanov, Vice-chairman of the RVC*

09.30 – 10.15 **Regional measles and rubella elimination. Update from the WHO Regional Office for Europe.**

*Dr Dragan Jankovic, WHO Regional Office for Europe*

Discussion

Plenary Session 2: Process of verification of measles and rubella elimination in the WHO European Region

10.45 – 11.30 **Framework for the verification process: basic principles and components**

*Dr Sergei Deshevoi, WHO Regional Office for Europe*

Discussion

11.30 – 12.00 **Definitions and terminology to be used in the Regional verification process**

*Dr Sergei Deshevoi, WHO Regional Office for Europe*

Discussion

- 12.00 – 12.30                    **Essential criteria and performance indicators**  
*Dr Dragan Jankovic, WHO Regional Office for Europe*  
Discussion
- 12.30 – 13.00                    **Establishment of National verification committee – terms of references and the relationship with the RVC and the WHO secretariat**  
*Dr Mark Muscat, WHO Regional Office for Europe*  
Discussion

Group works session 1: Performance indicators of measles and rubella elimination and availability of relevant data in participating Member States

- 14.00 – 16.00                    **xiii. National goals and strategies**  
**xiv. Population immunity measures**  
**xv. Surveillance performance indicators**  
**xvi. Progress towards elimination goals**

- 16.30 – 17.15                    **Feedback from group work**

**Thursday 28 February 2013**

- 09.00 – 09.45                    **Documentation process. Measles and rubella elimination annual status report**  
*Dr Mark Muscat, WHO Regional Office for Europe*  
Discussion
- 09.45 – 10.15                    **Barriers and solutions for immunizing hard to reach communities**  
*Dr Svetla Tsoleva, ECDC*

Group works session 2: Priority actions to meet 2015 elimination goal

- 10.45 – 12.30                    **ix. Identify priority actions to maintain and increase vaccination coverage among children and adults**  
**x. Identify priority actions to improve and sustain surveillance for measles and rubella/CRS**  
**xi. Advocacy and communication**  
**xii. Develop outline of action plan for documentation of measles and rubella elimination**
- 13.30 – 14.00                    **Feedback from group work**
- 15.00 – 16.00                    **RVC private meetings with WHO Secretariat and ECDC**

## **Annex 2: List of participants (by meeting)**

### **Intercountry Meeting on Verification of Measles and Rubella Elimination in the WHO European Region, Tashkent, Uzbekistan, 23–24 October 2012**

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**Verification of Measles and Rubella Elimination in the WHO European Region: A joint WHO and ECDC Subregional Meeting, 29–30 January 2013, Copenhagen, Denmark**

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**Verification of Measles and Rubella Elimination in the WHO European Region: A joint WHO and ECDC Subregional Meeting, 12–13 February 2013, Rome, Italy**

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**Verification of Measles and Rubella Elimination in the WHO European Region: A joint WHO and ECDC Subregional Meeting , 27-28 February 2013, Sofia, Bulgaria**

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