



**6th Meeting of the
European Technical Advisory Group of
Experts on Immunization
(ETAGE)**

**24-25 October 2006
Copenhagen, Denmark**

Abbreviations

ACPE	Advisory Committee on Polio Eradication
AEFI	Adverse Events Following Immunization
AFP	Acute flaccid paralysis
CDC	Centers for Disease Control and Prevention, Atlanta, USA
CISID	Centralized Information System for Infectious Diseases
CRI	Congenital rubella infection
CRS	Congenital rubella syndrome
cVDPV	Circulating vaccine derived poliovirus
ECDC	The European Centre for Disease Prevention and Control
EIW	European Immunization Week
ETAGE	European Technical Advisory Group of Experts on Immunization
GAVI	Global Alliance for Vaccines and Immunization
GFIPMS	Global Framework for Immunization Programme Monitoring and Surveillance
GIVS	Global Immunization Vision and Strategies
Hib	Haemophilus influenzae type b
HIV/AIDS	Human Immunodeficiency Virus/Acquired Immunodeficiency Syndrome
IHR	International Health Regulations
IPV	Inactivated Polio Vaccine
OPV	Oral Polio Vaccine
MR	Measles and Rubella
RC	Regional Committee of the WHO European Region
SIA	Supplemental Immunization Activities
VDPV	Vaccine-derived poliovirus
VPI	Vaccine-preventable Diseases and Immunization programme of the WHO Regional Office for Europe
VPD	Vaccine-preventable Diseases
WHO	World Health Organization
WHO/EURO	WHO Regional Office for Europe
WHO/HQ	Headquarters of the World Health Organization
WPV	Wild poliovirus

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Introduction

The 6th meeting of the European Technical Advisory Group of Experts on Immunization (ETAGE) was held at the WHO Regional Office for Europe, Copenhagen, from 24-25 October 2006. ETAGE meets every six months to review the progress of the Vaccine-preventable Diseases and Immunization programme towards the regional goals. Dr Patrick Olin chaired the meeting in the absence of Dr Pierre van Damme. Dr Gudjon Magnusson Director of Health Programmes welcomed the ETAGE members and representatives from partner agencies and HQ as well as country representatives from Romania and Ukraine. Dr Nedret Emiroglu, Regional Adviser, Vaccine-preventable Diseases and Immunization Programme opened the meeting and introduced the agenda. The objectives of the meeting were to provide ETAGE members with updates and receive input on the following:

1. Programmatic activities carried out in 2006 and plans for 2007;
2. Accelerated disease control status in 2006, including measles and rubella elimination and efforts to sustain “polio-free” status in the WHO European Region;
3. The status of integration of assessment and training activities relating to vaccine-preventable disease surveillance in the countries of the Region.

In addition ETAGE discussed and endorsed the following:

1. Report of the European Immunization Week 2005 and plans for 2007.
2. Report of the 9th meeting of Operation MECACAR and implementation plan for operation MECACAR New Millennium.
3. Plan for strengthening coordination with the ECDC in the field of immunization and vaccine- preventable diseases.
4. The regional guidelines on outbreak response in case of importation of wild poliovirus and/or detection of circulating vaccine-derived poliovirus.

Opening statements

Director, Division of Health Programmes

Dr Magnusson highlighted the important role played by ETAGE in terms of setting the technical direction and priorities for the immunization programme in the WHO European Region. He also highlighted the continuing support of the Regional Director particularly in relation to the Resolution for strengthening immunization systems through measles and rubella elimination and the implementation of the European Immunization Week initiative. Dr Magnusson reiterated that the Regional Director would be fully briefed on the main outcomes and recommendations from the meeting and he wished the group productive and positive deliberations.

Chairman, ETAGE

Dr Olin welcomed and reminded the participants of the main terms of reference of the ETAGE; to provide independent review and expert technical input to the WHO European Region’s immunization programme, with the objectives of facilitating and accelerating the achievement of the regional targets and that ETAGE functions as an independent advisory body to the Regional Director of WHO.

Technical Session 1

Vaccine-preventable Diseases and Immunization Programme 2006-2007

Dr Emiroglu gave an overview of selected areas of work plan implementation for 2006. With regard to the annual vaccine-preventable disease (VPD) incidence and vaccination coverage data received from the 53 Member States, average national vaccination coverage levels for most antigens are reportedly quite high. Average measles-containing vaccine (MCV1) coverage has increased steadily over the last 4 years to an average of 93% in the EU Member States; an average of 96% in the newly independent states and 96% for the central and eastern European Member States. However, vaccination coverage is far from optimal in a number of sub-national areas in some countries. Moreover, a 95% overall coverage still leaves close to 600 000 infants unvaccinated in the Region.

Progress is being made with respect to increasing the number of VPI staff in priority countries and sub-regions. As of October 2006, there are five national staff in place (and one under recruitment) and four international staff (three under recruitment). As all these positions are funded by external or donor funds, to ensure sustainable funding for these position, ETAGE felt it is important to have an approach to evaluation and documentation of the performance of these staff and their contribution to the programme should be demonstrated. This is challenging given their role as technical advisers to the national immunization programmes.

With respect to the programme plan and budget for 2006-2007, ETAGE requested a review of budget shortfalls at the Spring 2007 meeting.

A Global Framework for Immunization Programme Monitoring and Surveillance (GIFMS) document is being finalised for presentation to the November 2006 meeting of the Strategic Advisory Group of Experts (SAGE) at WHO Geneva. There may be opportunities as part of supporting GFIMS especially the eight GAVI eligible countries in the WHO European Region to obtain additional support for programme monitoring and VPD surveillance including the development of laboratory networks

Immunization system strengthening and new vaccines

The conceptual approach to immunization system strengthening is applied through a cyclical process of initial assessment of the national immunization programme, identification of strengths, weaknesses and needs, planning and policy development, capacity building (including tools for implementation) and follow up, monitoring and assessment.

During 2006 a comprehensive assessment and evaluation of the Armenian and Georgian Immunization programmes was carried out; the multi-organization team made recommendations and implementation will be monitored and assessed.

A meeting was held to review the process for information and evidence gathering to support the introduction of new and under-used vaccines. Missions followed to review evidence for Hib and rotavirus and sentinel surveillance systems have been established in some countries.

Support to GAVI-eligible countries entered phase 2, where eight countries are now supported for immunization system and health system strengthening. These countries are

also in the process of developing their multi year plans. Moreover, support will be provided for comprehensive MYP development in non-GAVI countries if resources become available.

Immunization quality and safety

VPI is starting to provide more support to countries for norms, standards and technical guidelines for vaccine production and strengthened National Regulatory Authorities, which, as a result of decentralization, is a new area of work. The support provided for quality and safety aims to improve processes and systems for the procurement of quality vaccines; effective vaccine management; injection safety; safe waste disposal; and surveillance of adverse events following immunization.

During 2006 a number of country missions and training sessions (through the Global Training Network) were carried out in priority countries. Follow up missions in Kazakhstan and Armenia showed significant progress in the areas of NRA strengthening and immunization safety. Furthermore, 15 countries were assessed for effective vaccine store management through the WHO/UNICEF initiative to improve vaccine management at national level.

A discussion ensued regarding the wide range of immunization schedules used in the Region, with different antigens and timing including booster doses. There is a pressing need to review and harmonize schedules, which is particularly important in relation to the introduction of new vaccines (Hib, rotavirus, pneumococcal, HPV vaccines). It was agreed that this issue should be discussed in detail at a future meeting of ETAGE.

Summary of follow-up actions to implement ETAGE recommendations

Ms Gare-Leech gave an update on the areas of the programme not covered in the current meeting, focussing on the actions taken since the last ETAGE meeting.

Due to the large number of Member States in the European Region, it is often difficult to monitor the strengths and weakness of the very different national immunization systems in the Region. The VPI team has now defined a number of indicators (41) intended to capture, as a “snapshot” these key strengths and weaknesses. This information can be maintained and updated relatively easily. The primary use would be to brief consultants working in the countries on behalf of the programme and to inform and prioritise the VPI annual workplan. Twenty one priority countries have been assessed (on paper) using these indicators.

The Regional Interagency Immunization Coordinating Committee (comprising partner agencies supporting and working closely with VPI) defined a need to review the resource mobilization efforts of the group, particularly with a view to increasing support from western European partners. To this end a working group was established and met in October 2006 to prioritize countries and identify specific priority activities to develop into funding proposals. Thirteen priority countries were selected (Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, Uzbekistan, Armenia, Azerbaijan, Georgia, Albania, Belarus, Bosnia and Herzegovina, Moldova and Ukraine). A SWOT (strengths, weaknesses, opportunities and threats) analysis was carried out on these countries and proposals for priority interventions made. These proposals need to be further refined and costed before they are presented to new and potential donors and partners. VPI is currently seeking additional technical support for this piece of work.

ETAGE found this information interesting and discussed the value of having such tools, particularly to better identify specific areas or population groups with low vaccination coverage.

Technical Session 2

Accelerated disease control; Measles and Rubella elimination

Dr Spika presented the latest information with regard to progress towards the measles and rubella elimination target. ETAGE complimented the Regional Office on progress with implementation of the work plan and recommendations from the previous meeting. In particular, the laboratory network has made excellent progress as evidenced by the molecular characterization of virus spread from the two large outbreaks in the Region (Romania and Ukraine). In addition the weighted average MCV1 coverage has increased to 94.1%, which is the highest of any of the WHO regions. Despite this progress, ETAGE expressed concern that the goal of measles and rubella elimination may not be reached by 2010 and discussed strategies for accelerating progress, keeping in mind the need to sustain high routine immunization coverage, particularly among high risk populations.

It was highlighted that the establishment of the polio eradication certification commissions at regional and country levels was an effective way of getting and maintaining high-level visibility and providing specific technical recommendations to countries. Although there is no global goal for measles eradication, there is a need for coordination at global level across regions with elimination goals to develop the criteria for monitoring progress towards elimination. Drawing on the experience from polio eradication, a regional certification commission would focus on the need for ongoing assessment of progress towards measles/rubella elimination at both country and regional levels.

The findings of the outbreak investigations in Romania and Ukraine were presented. In Romania, most of cases appeared to be children less than seven years of age from families with low socioeconomic status, who were not accessing preventative health services. In Ukraine, the majority of cases were 15-29 years of age and many had a history of receiving either one or two doses of measles vaccine. A case-control study found reduced measles vaccine effectiveness for vaccine administered prior to 1992. The age susceptibility in Ukraine was similar to what has been observed in other countries of the former Soviet Union.

ETAGE confirmed the importance of using lessons learnt from these outbreaks to direct programme activities (i.e. age groups to target in SIAs and marginalized communities to target). In addition, outbreaks represent an opportunity to get political commitment for strengthening immunization activities and surveillance to achieve measles elimination in the Region. These experiences should be summarized and distributed to other countries.

ETAGE endorsed the draft recommendations resulting from these field investigations and felt they should be urgently implemented (annex 1). Especially the Ukraine outbreak has implications for other NIS for the age groups at risk. The Romanian experience has implications with respect to accessing high risk and marginalized groups in other countries in the region. A coordinated regional approach may be needed to address this problem.

Update on global polio eradication and the regional efforts to sustain polio-free status

Dr Zingeser gave an update on the global and regional polio eradication programmes. ETAGE congratulated the Regional Office on sustaining the Region's polio-free status and for being the first Region to complete Phase I of the Laboratory Containment of Wild Polioviruses (WPV). However, concern remains high over the global polio eradication situation, which is at a critical point with ongoing outbreaks occurring in the four remaining polio-endemic countries in 2006. As a result, there is an increasing risk of wild poliovirus importation into the European Region. In addition, in their 2006 meeting, the European RCC noted that programme data suggest that the quality of AFP surveillance has been slowly declining since 2002 and that significant high risk sub-populations and underserved areas remain, for which polio surveillance and immunization indicators are weak. New global initiatives to strengthen the programme recommended by the Advisory Committee on Polio Eradication (ACPE) include stronger global recommendations for travellers, and the International Health Regulations 2005, which will come into force in 2007. Regional initiatives include new guidelines on outbreak response and strong encouragement of supplementary immunization activities (SIAs) to close immunity gaps at the national or sub-national level.

Regional guidelines on outbreak response in case of importation of wild poliovirus and/or detection of circulating vaccine-derived poliovirus (cVDPV)

Dr Oblapenko presented the Regional guidelines on outbreak response to importation of wild poliovirus and/or cVDPV. Two important approaches differing from the global recommendations are: response to single versus multiple-case outbreak, and the vaccine of choice (mOPV, tOPV or IPV). In countries which have sustained a high level of IPV coverage over a long period of time, data suggest that outbreaks can be contained with targeted use of IPV alone. In countries that use OPV or a combined schedule of IPV and OPV, the appropriate mOPV would be the vaccine of choice. Standard actions to respond to cases have to include: case investigation, enhancing surveillance, conducting comprehensive analysis of immunological profile of sub-populations, conducting risk assessment and catch up vaccination. Mopping up vaccination and/or mass vaccination campaigns must be considered, based on the result of risk assessment and depending on the potential risk of spread of wild polioviruses. The draft guidelines are expected to be completed in the first quarter of 2007.

Report on the 9th meeting of operation MECACAR

Dr Spika presented highlights from the recent MECACAR meeting with neighbouring countries of the European and Eastern Mediterranean regions. MECACAR countries make up an epidemiological block with some shared challenges with regard to disease control. Hence there is a compelling need to coordinate major disease control initiatives (e.g., polio eradication and measles/rubella elimination) between countries on either side of the WHO regional boundary. There was agreement at the last meeting that there should be a MECACAR meeting every 2 years and more regular cross border coordination meetings as needed. Although polio eradication remains the top priority of Operation MECACAR in polio endemic countries, the countries participating agreed to work together on measles and rubella elimination under the auspices of MECACAR New Millennium. A plan has been developed for joint measles/rubella-related activities.

**Technical Session 3:
The European Immunization Week - Regional Evaluation of the Pilot Initiative and plans for 2007**

Ms Gare-Leech presented a brief history of the European Immunization Week and its implementation in 2005. She focussed on the latest developments including a “lessons learnt and planning for 2007” meeting, which was held in September. Participants from 19 countries reviewed the lessons learnt in the six implementing countries in 2005 and discussed in detail the planning process for 2007. The participating countries were very enthusiastic and the group work session highlighted a number of issues which will be reflected in the final national planning documents. The evaluation framework and guidelines for national planning will be revised and disseminated to the participating countries. Planning has begun for EIW 2007 which will be held from 16-22 April 2007. All related information products and downloads for use by countries will be accessible through the VPI website.

It was noted that the US has been conducting a National Immunization Week for over 10 years and in recent years has participated in the Region wide Vaccination Week in the Americas (VWA) which has strong support from all member countries.

It was suggested that planning begin for 2008 (i.e. proposed dates) to ensure the understanding that it is an annual initiative and that countries not participating to date, may be able to participate in future years.

**Technical Session 4:
Status of integration of assessment and training activities related to VPD surveillance in countries of the Region**

Dr Stoica presented an update on the rapid assessment and training tool. Reporting practices for immunization coverage and vaccine-preventable diseases vary greatly within the countries of the WHO European Region. The experience with establishing AFP surveillance in the Region shows that standards can be developed and implemented especially in central and eastern European countries. This has resulted in timely case-based data being collected and reported to the Regional Office.

As there is now a regional goal for measles and rubella elimination by 2010, there is a need to enhance the routine surveillance for these diseases to include case-based reporting with laboratory confirmation of suspected cases from local to Regional Office level. To address this need, the Regional Office has developed a package of guidelines for conducting rapid assessments of VPD surveillance and training of national staff on WHO standards/best practices for conducting VPD surveillance. Modules are being developed for polio/AFP, measles/rubella, congenital rubella infection and adverse events following immunization. Additional modules are planned to be developed for remaining VPDs.

There is a strong tradition of integrated communicable disease surveillance mandated by public health laws within the European Region especially in countries of the former Soviet Union. At country level VPD surveillance is usually, but not exclusively, conducted by non-EPI staff.

During the discussion session ETAGE members endorsed the new approach, requesting the tool to be widely available, and emphasized the importance of integrating with surveillance for other communicable diseases.

Technical Session 5: Plan for strengthening technical collaboration with the ECDC in the field of vaccine-preventable diseases

Dr Tull summarized the organizational structure and rapid development of the ECDC since its inception in 2005. The Organization is projected to house approximately 250 staff with an annual budget approaching 50 million Euros by 2007-2008. He explained the difference between disease-specific surveillance networks on the one hand, and the European Commission projects, in which ECDC participates but does not manage directly, on the other. He listed a number of projects within ECDC that relate to VPDs and emphasized the ongoing and future areas for collaboration with VPI including EUVACNET, VACSAT, DIPNET, VENICE, and POLYMOD.

In addition, there was the recent example of very positive technical collaboration with regard to the investigation of measles outbreaks in Romania and Ukraine. Finally, the ECDC are a standing member on ETAGE and VPI staff are involved in the ECDC advisory committees.

A broader discussion then took place regarding the future and composition of ETAGE. It was felt that a broader membership may be desirable to better reflect the diversity in the Region and ensure recommendations are appropriate to different health systems and settings. Experience from the Americas Region of the WHO underscores the importance of representation of large countries in the PAHO technical advisory group meeting (corresponding to ETAGE in WHO/EURO). It was suggested to extend the rotation period of membership and increase the number of members. Two meetings will be held annually.

General conclusions and recommendations

ETAGE appreciates the general improvement of vaccination coverage in the Region and supports the Regional Office's plan for increasing vaccine coverage through actions directed towards national and/or sub national areas with low coverage.

ETAGE considers comprehensive multi-year planning, including long term costing predictions of national immunization services as useful tools. ETAGE recommends that current country experiences with use of these different planning and reporting documents be reviewed to better utilize them as central tools for programme planning and reporting. The content of the reports should periodically be reviewed to enable wider use of these reports at country and regional levels.

ETAGE supports the gradual increase of VPI field staff in priority countries and sub-regions and recommends that the Regional Office, in consultation with donors, develop an approach for assessing the impact of field staff on achieving programme goals. The purpose of this is to ensure optimal placement of field staff and sustained donor support for these positions.

ETAGE will closely follow the development of the new Global Framework for Immunization Programme Monitoring and Surveillance.

ETAGE recommends that the Regional Office participate in assessing the costs of strengthened VPD surveillance and programme monitoring in the Region for inclusion in the global budgeting process.

Measles and rubella elimination

ETAGE compliments the Regional Office on progress with implementation of the workplan and recommendations for accelerated disease control - measles elimination and CRI prevention. In particular, the laboratory network has made excellent progress as demonstrated in the investigations of two major outbreaks in Ukraine and Romania.

ETAGE also congratulates Ukraine and Romania for conducting detailed field investigations (with support from WHO and in collaboration with ECDC and CDC) that identified the main reasons for the protracted measles outbreaks in each country.

ETAGE endorses the draft recommendations resulting from these field investigations and felt they should be urgently implemented. The Ukraine outbreak has important implications for other newly independent states (NIS) to determine the age groups of the population at risk. The Romanian experience has implications with respect to accessing minority and marginalized groups at high risk in many countries in the region. A coordinated regional approach may be needed to address this problem.

Despite impressive programme developments, ETAGE expresses concern that the goal of measles and rubella elimination may not be reached by 2010. Strategies for accelerating progress were discussed which included using the experiences from the recent outbreaks and continued close collaboration with ECDC.

ETAGE recommends that the regional office begin the process of establishing a regional certification commission (by mid 2007) for measles and rubella. Drawing on the experience from polio eradication such a commission would focus on the need for ongoing assessment of progress towards MR elimination in Member States and the Region as a whole.

Polio Eradication

ETAGE recognizes the seriousness of the potential for wild poliovirus importations from the remaining polio-endemic countries and is encouraged that the Regional programme is taking action to reduce the risk of spread after importation through developing the relevant guidelines. ETAGE endorses this Regional effort and strongly recommends that response to wild polio importation be conducted as a matter of urgency.

ETAGE recommends implementation of SIAs in 2007-2008 in selected high-risk countries, using OPV to close immunity gaps as presented by the Secretariat.

ETAGE supports the recommendations from the Advisory Committee on Polio Eradication (ACPE) being adapted to the regional needs and specific conditions. An outbreak response should be tailored to country-specific risk profiles. For example, different responses may be needed depending on number of cases (one vs. two or more than one case); and routine vaccine in use (OPV vs. IPV). The outbreak guidelines prepared by the Regional Office should be developed in close consultation with ECDC.

ETAGE endorses the extension of Operation MECACAR to MECACAR New Millennium to include measles/rubella elimination and would like to support countries signing a declaration of cooperation around these new goals. ETAGE looks forward to receiving progress reports and the possibility of country representatives participating as observers in these meetings.

European Immunization Week

ETAGE endorses the evaluation report and supports the initiative to conduct an annual European Immunization Week and sees it as a staged process that should be tailored to the needs to individual countries.

ETAGE recognizes the time and resources required to enable annual participation and encourages evaluation of each year's activity to ensure the stated goals are achieved.

Vaccine-preventable disease surveillance

ETAGE recognizes the need for enhanced surveillance of VPDs particularly those that are targeted for elimination or eradication. ETAGE commends the VPI team for developing assessment and training tools for surveillance of AFP, AEFI and measles and rubella. These tools should, as appropriate, be integrated into the surveillance scheme for all communicable diseases, both at Regional Office and country level.

ETAGE recognizes the need for additional inter-programmatic coordination at the Regional Office and urges the Regional Director to consider measures to ensure the use of such tools for defined conditions as part of regular communicable disease surveillance.

Technical collaboration with ECDC

ETAGE finds the reviews presented by ECDC and VPI valuable and congratulates both organizations on the mutual positive spirit of cooperation. ETAGE emphasizes the importance of open communication including direct representation by each organization in the other's meetings.

Annex 1

Recommendations made to the Ministries of Health of Romania and Ukraine, following measles outbreak investigations

Romania

The Ministry of Health should strengthen immunization systems by including immunization in the list of both the basic package and minimum services provided by family physicians to patients on their client lists; ensuring that family physicians will provide immunizations to children not on their client lists; improving vaccine procurement so that vaccine supply is not interrupted; identifying and addressing risk factors for low vaccination coverage; better integrating marginalized groups into the health system; and monitoring and supervising general practitioners' delivery of services to marginalized populations.

The Ministry of Health should strengthen epidemiological surveillance for vaccine-preventable diseases by developing clearly defined roles and responsibilities and terms of reference for each institution/organization involved, including the Ministry of Health, the National Centre for Communicable Diseases Prevention and Control (NCSCCD) and the four Institutes of Public Health. This should include ways to improve communication, coordination and cooperation among these agencies; simplify data management and reporting mechanisms to avoid parallel and duplicative activities, enhancing the collection of timely national data; and ensure adequate staffing and regular training based on the needs at each level.

Immunization coverage should be assessed nationally through a coverage survey to better define groups or geographic areas with low coverage and to assist in the development of a valid methodology for monitoring coverage.

Strong efforts should be undertaken to increase coverage for all vaccines, particularly among marginalized communities, by:

- Improving access to preventative health care;
- Improving information/ training for family doctors on ways to reach hard-to-reach populations/ families;
- Strengthening the use of immunization cards;
- Better adapting health messages according to the level of literacy of the mother and the language spoken at home;
- Reducing institutional barriers to immunization and making use of all opportunities to vaccinate high-risk children whenever and wherever they access health care, including the use of Emergency Rooms and antenatal/ postnatal care clinics, community nurses, outreach/ mobile clinics, and greater use of Roma health mediators; and
- Participating in European Immunization Week in April 2007.

The immunization of infants 7-11 months of age against measles should only continue in districts having measles outbreaks, while other districts should implement the original MMR schedule. Those receiving a dose at 7-11 months of age should also receive a dose at 12-15 months.

The Ministry of Health should develop and implement a plan to address rubella-susceptible individuals, including women of childbearing age.

WHO is ready to support immunization strengthening activities, including a general immunization review; specific activities targeting immunization quality and safety, information system strengthening for vaccine preventable diseases or monitoring and improving immunization coverage; and a review of activities and plans to meet the European Region's measles, rubella and congenital rubella infection targets for 2010.

Ukraine

The persons who participated in the investigation at the national and sub-national levels should be recognized for their hard work and support of the investigation team.

The use of two-dose MMR vaccine schedule in the childhood immunization programme needs to be strengthened to ensure all children are receiving vaccine at the appropriate age and that only appropriate contraindications are used. A national review of contraindications used for measles vaccination could be undertaken to assess current practices and ensure they are consistent with national guidelines.

Well-organized, supplemental immunization activities in well-defined, targeted areas and among selected high-risk groups can be considered as a short term approach in responding to the current outbreak; however, such supplemental activities are not well-documented to be effective in large outbreaks.

A national measles supplemental immunisation activity for birth cohorts 1977-91, irrespective of their vaccination history, should be strongly considered. Inclusion of susceptible persons younger and/or older than this age range needs to be considered based on a more thorough analysis of national measles data and the birth-cohort-specific incidence of measles. The use of combined measles-rubella vaccine is strongly encouraged during a national measles supplemental immunization activity, so that both measles and rubella susceptible persons can be targeted and efficiently reached, allowing Ukraine to meet the year 2010 elimination targets for these diseases.

All health care workers should be offered measles vaccination, regardless of age.

A review of measles immunization records at school, university or induction into the military is an opportunity to immunize persons who may be susceptible to measles and an opportunity to ensure they are vaccinated.

Case-based surveillance for measles, rubella and congenital rubella syndrome should be implemented after a national supplemental immunization activity for measles and rubella. Adequate support for the laboratory diagnosis of these infections will be critical