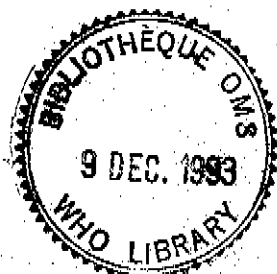


EUR/ICP/EPI 012/B

SEVENTH MEETING OF THE
EUROPEAN ADVISORY
GROUP ON THE EXPANDED
PROGRAMME ON
IMMUNIZATION



WORLD HEALTH ORGANIZATION
Regional Office for Europe
COPENHAGEN

TARGET 5

REDUCING COMMUNICABLE DISEASE

By the year 2000 there should be no indigenous cases of poliomyelitis, diphtheria, neonatal tetanus, measles, mumps and congenital rubella in the Region and there should be a sustained and continuing reduction in the incidence and adverse consequences of other communicable diseases, notably HIV infection.

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EUR/ICP/EPI 012/B
ORIGINAL: ENGLISH

**SEVENTH MEETING OF THE
EUROPEAN ADVISORY GROUP ON
THE EXPANDED PROGRAMME ON
IMMUNIZATION**

Report on a WHO Meeting

**Copenhagen
3 - 5 February 1993**

ABSTRACT

At its seventh meeting, the European Advisory Group (EAG) on the WHO Expanded Programme on Immunization (EPI) reviewed progress towards regional and global goals, reviewed draft operational targets for EPI diseases and considered vaccine supply issues in the European Region. The EAG noted obstacles to the achievement of EPI goals at the global level, and identified objectives, problems and priorities for EPI in the European Region. The EAG approved the new operational targets, and agreed to broaden its scope to consider vaccine-preventable diseases not yet part of EPI: pertussis, hepatitis A and B, tuberculosis and disease caused by *Haemophilus influenzae* type b. In its recommendations, the EAG urged the WHO Regional Office for Europe to raise health ministers' awareness of the opportunities to improve health through immunization, and to secure their support for the new operational targets. The recommendations also call for a regional strategy to secure vaccine supplies and additional financial support for EPI.

Keywords

IMMUNIZATION
COMMUNICABLE DISEASE CONTROL
WHOOPING COUGH – prevent/control
TUBERCULOSIS – prevent/control
HEPATITIS – prevent/control
POLIOMYELITIS – prevent/control
VACCINES
NIS
CCEE

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INTRODUCTION

The Seventh Meeting of the European Advisory Group on the Expanded Programme on Immunization was held at the WHO Regional Office for Europe from 3 to 5 February 1993. The Meeting was chaired by Sir Joseph Smith, the Vice-Chairperson was Professor P. Begué and the Rapporteur was Dr D. Salisbury. Dr M. Tschekovski, Director, Disease Prevention and Quality of Care, opened the meeting by welcoming the participants and introduced Dr J. Asvall, Regional Director, WHO Regional Office for Europe, who described the changing role of WHO in Europe, drawing attention to the importance of controlling communicable diseases. Dr G. Oblapenko and Dr C. Roure served as Secretaries to the meeting. The working papers and the participants are listed in Annexes 2 and 3, respectively.

The main objectives of the Meeting were:

- to consider the role of the European Advisory Group (EAG) in the management of the regional Expanded Programme on Immunization (EPI);
- to review progress in the Region and country reports in the light of the regional and global objectives;
- to review the operational targets for EPI diseases recommended by an expert working group;
- to consider issues in vaccine supply for the Region; and
- to draw up preliminary plans for the next meeting of European EPI managers.

CHANGING ROLE OF WHO IN EUROPE

The WHO European Region is changing dramatically. By January 1993, the addition of 16 new countries raised the total number of Member States to 47. Many countries face grave economic problems along with dramatic rises in unemployment, and eight Member States are involved in civil war. The diseases of poverty are gaining importance as a cause of health problems, and there have been

recent outbreaks of previously controlled diseases such as cholera, poliomyelitis, diphtheria and hepatitis. HIV and AIDS continue to spread to the central and eastern countries of the Region. Further, there are strong public pressures towards decentralization, privatization and the introduction of health care insurance systems. All of these changes pose considerably problems for public health and primary health care. Mass movements of populations, including refugees, create a need for special efforts to prevent outbreaks of communicable disease.

ROLE OF THE EUROPEAN ADVISORY GROUP

The EAG accepted the terms of reference drawn up at its Sixth Meeting.^a The purpose of the EAG is to provide advice and guidance to the WHO Regional Office for Europe and countries as a review group. The EAG will work in harmony with national programme managers and seek to motivate national and international agencies to support immunization programmes. It will provide advice on vaccine-preventable diseases that are not yet part of EPI, such as pertussis, tuberculosis, hepatitis A and B, and disease caused by *Haemophilus influenzae* type b. The lack of European targets for pertussis is particularly noticeable. The epidemiology of hepatitis B in western and northern Europe warrants specific consideration as it differs from that in many of the countries for which global recommendations have been made. Multi drug-resistant tuberculosis is an increasing problem, and the use of BCG vaccine varies considerably.

The EAG considered these matters to be so urgent that they should not be delayed until the next annual meeting. It was suggested that the Regional Office prepare or commission position papers for circulation to EAG members. The EAG was reminded that Dr Bijkerk had recently reviewed the surveillance of tuberculo-

^a *European Advisory Group on the Expanded Programme of Immunization. Report on the Sixth Meeting. Longen, Federal Republic of Germany, 18-20 February 1992. Copenhagen, WHO Regional Office for Europe, 1992 (document EUR/ICP/EPI 012/A).*

sis and hepatitis B in the European Community (EC), Austria, Norway, Sweden and Switzerland.

PROGRESS AND PROBLEMS IN EPI

Global overview

At the global level, immunization coverage had risen between 1988 and 1990, but had levelled off by 1993, raising concerns about the sustainability of immunization programmes. Priorities for EPI are therefore to achieve and sustain high coverage, to improve surveillance (to collect information for action) and to introduce new vaccines. Obstacles to the achievement of EPI goals are:

- (a) financial shortcomings, which has resulted from the redirection of resources from agencies such as the United Nations Children's Fund (UNICEF) and Rotary International and which has implications for the maintenance or renewal of cold-chain equipment and for vaccine supply at a time when prices are rising;
- (b) ineffective disease surveillance;
- (c) weak delivery of immunization services;
- (d) increasing urbanization;
- (e) increasing privatization of health services;
- (f) increasing demands that national programmes devote management and financial resources to elimination or eradication activities; and
- (g) the introduction of vaccines for hepatitis B and yellow fever, possibly diverting resources from routine services.

European Region

The main objectives of the regional EPI remain to encourage national immunization programmes oriented towards regional target 5, to implement the recommendations of the Global Advisory Group, and to support surveillance, vaccine supply and EPI logisti-

cal activities. There are three zones of increased activity: cooperation with new Member States, training (especially for middle-level managers) and activities to eradicate poliomyelitis.

Improvements continued throughout the Region in 1992, especially in surveillance. More countries report more regularly. Nevertheless, measles is still not a notifiable disease in six countries, and neonatal tetanus is not notifiable in many. Congenital rubella is reported only in eight countries. Lack of case definitions is common and single cases of poliomyelitis are not reported spontaneously. In many countries, coverage is estimated through imprecise methods. Particular problems were noted in countries where the privatization of health services was increasing, as the private sector was least reliable in returning information on coverage and surveillance.

Short-term problems (those that could be solved in 2-3 years) are as follows:

- (a) the spread to other countries of the diphtheria epidemic that started in the Russian Federation in 1990;
- (b) a lack of political commitment to immunization programmes at the national and regional levels;
- (c) the small number of countries that have adopted national immunization programmes oriented towards target 5;
- (d) poor communication with the newly independent states (NIS) of the former USSR;
- (e) shortages of vaccines in many NIS;
- (f) a lack of monitoring of the morbidity from diseases covered by target 5;
- (g) a lack of feedback from the regional EPI to national programmes;
- (h) a lack of funds for the regional EPI.

Long-term problems include: the lack of political and financial support to national immunization programmes, inadequate surveillance, vaccine shortages, the lack of managerial skills at all levels of public health services, and the lack of communication with and mobilization of the public and health workers. The priorities for 1993/1994 are:

- (a) taking emergency action to coordinate international and national efforts to control the diphtheria epidemic;
- (b) mobilizing political and financial support from Member States for the achievement of regional target 5;
- (c) ensuring the continuity of vaccine supplies to sustain national immunization programmes;
- (d) adapting national immunization programmes towards new operational targets for EPI for the 1990s;
- (e) strengthening and accelerating work towards poliomyelitis eradication;
- (f) improving surveillance systems; and
- (g) improving the management of immunization programmes.

The EAG agreed that surveillance is of the utmost importance in identifying problems and stimulating the action that should follow. The feedback of surveillance data to all levels is critical. WHO headquarters would soon issue guidelines on surveillance. Although prepared for less developed countries, they could well be appropriate for much of the European Region. Despite the difficulties of surveillance, particularly where private services are increasing, new approaches to surveillance will be necessary, such as sentinel systems, the analysis of insurance returns and the analysis of hospital activity through ICD codes. The EAG noted the potential political embarrassment resulting from outbreaks of vaccine-preventable disease and hoped that health ministers in countries would discover the importance of taking action before outbreaks occurred and of the benefits that would follow from the improvement of health through immunization.

OPERATIONAL TARGETS FOR THE EUROPEAN REGION

The EAG reviewed the draft operational targets for EPI diseases for the European Region, which had been drawn up by an Expert Group that met in Milan in 1992. It was agreed that there should be no change to the overall targets, except for those for measles. The EAG

endorsed the opinion of the Expert Group that there was little prospect of eliminating measles from the Region by the year 2000. This target should thus read:

By the year 2000 there should be no deaths from indigenously acquired acute measles in the Region and the annual incidence of confirmed cases of measles in each country of the Region should be less than 1 per 100 000 population.

The EAG endorsed the operational targets, making only a few changes. These included lowering the recommended level of immunization coverage for measles, mumps and rubella from 99% to "more than 95%". Although the EAG agreed that no eligible child should remain unimmunized, it felt that the suggested coverage target of 99% would appear unattainable to many and thus might discredit the whole target process. Finally, the EAG decided to delete the target calling for serological studies to assess the tetanus immunity status of the adult population

The modified operational targets, along with the discussions of the Expert Group, comprise Annex 1. The Group requests the support of the Regional Director to commend the new operational targets to ministers of health of all Member States.

VACCINE SUPPLIES

Considerable problems continue to arise in ensuring adequate supplies of vaccines that match WHO specifications, especially in the NIS. Progress is being made, however, through national and international initiatives. UNICEF has agreed to take part in immunization programmes in developing countries in the Region and Rotary International will also support a group of European countries.

Although the United States Agency for International Development (USAID) has given vaccines to some of the NIS, problems remain with the selection of vaccines and their suitability for routine

use in NIS in which they are not licensed. Procedures for importing vaccines still need to be resolved, authorities in countries that produce vaccines still need help with quality control and producers need to improve quality assurance standards. Although the urgent vaccine supply needs have been resolved for the present, complex future requirements remain unresolved.

An important meeting is planned for March 1993 to bring together UNICEF, EC, the WHO EPI, Biologicals (BLG) programme and Child Vaccination Initiative (CVI), USAID, the World Bank and representatives from each of the NIS. The countries and agencies set up strategies to ensure the availability of high-quality vaccines. As the EAG is to advise the Regional Office for Europe on immunization strategies, supply issues would be very relevant to its deliberations. The EAG therefore wanted to consider the report of this meeting as soon as possible, as its outcome could have considerable implications for many immunization programmes in the Region.

In conjunction with the CVI Task Force on Global Vaccine Supplies, EPI is developing a strategy for the supply of vaccines that meet WHO requirements. It is essential that the work being done in the Regional Office be integrated into the CVI/EPI framework. A regional strategy should be established before the proposed March meeting, and be made available to the members of the EAG as soon as possible.

ERADICATION OF POLIOMYELITIS

Global overview

At the global level, although immunization coverage for poliomyelitis had peaked in 1990 at 85% and fallen in 1991 to 81%, reported cases of paralytic poliomyelitis have declined to around 12 000. The efficiency of reporting is estimated at around 10%.

The WHO South-East Asian Region reports the greatest number of cases (46% of global reports) and 60% of these come from the Indian subcontinent. This arouses concern about the risks of

importing the disease to polio-free countries owing to the mobility of families with young children.

In 1981, 1600 cases of poliomyelitis were reported from the Americas Region; since September 1991, very sensitive surveillance has not identified a single case of wild virus poliomyelitis. A review of this surveillance showed that, in countries where poliomyelitis is endemic, limiting surveillance of acute flaccid paralysis to children under 5 years retains a 96% sensitivity for the detection of poliomyelitis cases. Studies in China are investigating the impact of campaigns targeted at children under 3 or under 4 years, rather than the currently recommended 5 years. If such a strategy proves successful, vaccine requirements may be reduced.

European Region

Cases of poliomyelitis reported in the European Region continue to decline, with those resulting from wild virus or unknown aetiology falling from 379 in 1990 to 306 in 1991. Preliminary data for 1992 show 151 cases, although reports are not yet available from Tajikistan and Azerbaijan. Vaccine-associated cases remain constant and imported cases have decreased. Imported cases were reported from Sweden, Germany and Norway in 1992, and probably led to the outbreak in the Netherlands. Despite changing from locally produced OPV to vaccine coming from outside the country, Romania still had a surprisingly high number of vaccine-associated cases (14) along with 2 endemic cases, in 1992. Most of the Region's cases of poliomyelitis are now concentrated in three areas – the Balkans, the Caucasus and central Asia – notwithstanding the outbreaks in the Netherlands and Ukraine. The percentage of districts that are infected with poliomyelitis continues to decline.

As to surveillance, more countries undertake acute flaccid paralysis surveillance and report each month to the Regional Office.

The eradication of poliomyelitis in the Region requires political commitment, financial support, special strategies, the availability of vaccine, well established surveillance and laboratory support. All of these can be shown to have contributed to the success in the Americas. Only laboratory support can be demonstrated to be near

satisfactory in the European Region, the other elements are not yet assured. Activities that are still needed include mobilizing support, supplemental activities, intensifying surveillance, further strengthening of the laboratory network and learning from recent experience in the Netherlands.

COUNTRY REPORTS

Bulgaria

Despite economic and political constraints, immunization coverage has been sustained, increased activities have been achieved and new vaccines (for hepatitis B and measles, mumps and rubella (MMR)) have been introduced in Bulgaria. Efforts have been made to reduce false contraindications, and acute flaccid paralysis reporting has been introduced and found to be very helpful, leading to better reporting from clinicians.

After a decade of successful control of measles, an epidemic in 1992 led to more than 20 000 cases, a rate of 224 per 100 000 population. In comparison with previous epidemics, the age at infection rose considerably, with morbidity highest in the group aged 15-18 years. The epidemic started in gypsies, who have latterly rejected immunization, but there were other pockets of susceptibles. There were three deaths in infants aged less than 4 months.

Finland

Prospects for achieving the new operational targets in Finland are good. Since the late 1980s there have been very few cases of measles, mumps and rubella, and it is recommended that all reported cases should be virologically confirmed. Serosurveillance of diphtheria immunity shows considerable gaps, particularly in women in their 40s, and it has recently been recommended that tetanus-diphtheria (Td) vaccine should be given, along with inactivated poliovirus vaccine (IPV), to the adult population every 10 years.

Russian Federation

National coverage figures for 1991 have fallen slightly for BCG and measles vaccine, from 92% to 88% and from 81% to 79%, respectively, while coverage with diphtheria-pertussis-tetanus vaccine (DPT) and oral poliovirus vaccine (OPV) remains constant at around 70%. Some major cities, however, have very low coverage levels; in St Petersburg, for example, coverage is 47% for DPT, and 50% for measles vaccine. While this arouses concern, morbidity from measles and whooping cough has declined slightly, and cases of poliomyelitis fell from 16 in 1991 to 10 in 1992. Nevertheless, major problems have been encountered with diphtheria, whose incidence rose from 1.3 to 2.6 per 100 000 population from 1991 to 1992; the attack rate in children rose from 1.7 to 3 per 100 000.

The problems identified low coverage, the inappropriate use of excessive contraindications, poor health education, poor cold chain equipment and training, a lack of EPI training, shortages of some vaccines, ineffective surveillance, a lack of operational research and a lack of management skills. Encouraging developments include a clearer political commitment to raising EPI's priority with governments and a greater preparedness to take prompt action.

The Netherlands

Between 1978 and 1992, only three cases of poliomyelitis had been reported in the Netherlands. Each patient had acquired the infection abroad. On 17 September 1992, a 14-year-old boy with a clinical diagnosis of poliomyelitis was reported. Three days later, typespecific IgM antibodies were demonstrated, and poliovirus 3 (wild) was isolated the following day. The boy belongs to a religious group that does not accept immunization; he had received 1 dose of monovalent type 1 OPV during the 1978 outbreak. Ten days after the first case, a second was reported. So far, 67 cases have been reported in the present outbreak. None of the patients had been immunized and all but one belong to social and geographical clusters of people that reject immunization (Orthodox protestant group). Two patients, a neonate and a man of 61 years, have died; 90% of cases have been virologically confirmed and are wild poliovirus 3.

Two thirds of the patients are male, one third female, with morbidity highest in people aged 15–19 years. Genome sequencing of the poliovirus shows that its closest match is a virus isolated in India, but there has been no linkage that identifies the source of the infection.

The actions taken to control the epidemic included offering OPV to unimmunized people in direct contact with patients, offering OPV or IPV to children up to 13 years of age who were incompletely immunized, and offering OPV to everyone aged 13–40 years who was not immunized.

Germany

Since the unification of Germany, the previously separate and very different immunization programmes have been harmonized. All childhood immunizations are free and voluntary. The public health sector provides 20% of DPT/DT and poliomyelitis vaccines, and the private sector the remaining 80%. All other vaccines are administered through the private sector. Because the private sector provides so much of the immunization service, coverage is hard to calculate on any basis other than that of distributed doses. School entry surveys have been used for definitive coverage data, although they do not provide timely information.

Maintaining the very high coverage levels and using vaccines not previously available were the priorities for the eastern part of the country in the change from state-run to private-sector immunization programmes.

Since 1991, pertussis vaccine has been recommended and increasingly used.

For at least three years, all cases of poliomyelitis have been vaccine associated or imported. Although there have been very few diphtheria cases recently (6 in 1990, 2 in 1991 and none in 1992), seroprevalence studies show that only 40–50% of people aged over 30 years have adequate levels of antibodies. This shows the need to recommend diphtheria booster immunizations. Similarly, considerable gaps in immunity to tetanus are found in people aged 30–40 or 60–70 years in western Germany. The most vulnerable are women

over 60. In eastern Germany, measles cases fell to around 1 per 100 000 population, but the disease was not notifiable in the western part of the country and vaccine coverage levels were considerably lower. These have now risen to around 80%. *Haemophilus influenzae* type b (Hib) vaccine was introduced in 1991, and coverage assessed at around 75%. A study undertaken in 50 children's hospitals showed that, between 1989 and 1991, cases of invasive Hib disease fell by a half from around 300 to 150. Ninety per cent occurred in non-vaccinated children and 10% in those receiving 1 or 2 doses. No cases were reported in fully immunized children.

Deaths from hepatitis B (about 200 per year) comprise the greatest mortality from any vaccine-preventable disease. Incidence remains low in rural communities but highest in Berlin and Hamburg, and the age distribution, with 87% of cases in people aged over 15 years, suggests that there is little short- or medium-term perinatal transmission and little benefit from mass infant immunization. Current strategies include recommendations for the immunization of risk groups but this has had insufficient impact, hence new strategies are being sought. Similarly, hepatitis A occurs mostly in adolescents and adults, and about half of the reported cases are imported. Hepatitis A vaccine has been recommended for risk groups since December 1992.

FUNDING FOR EPI

The current global costs for EPI are estimated at US \$1 572 million, achieving 80% coverage at US \$15 per fully immunized child. Of these costs, 50% are in salaries, 25% in operating costs, 10% in vaccines, 10% in transport, 3% in training and 2% in equipment. When immunization services are fully integrated into primary health care, the most efficient use can be made of the most expensive components of the programme – the salaries and operating costs – as these can be diversified for the provision of other primary care services.

At present, the available funds are insufficient to achieve the objectives of the regional EPI by the date that has been set, despite

the generosity of governmental and nongovernmental organizations and other donors. The resource requirements will be met only through the development of formal, long-term fund-raising, as well as opportunistic initiatives that capitalize on high-profile opportunities. In addition, some immunization programmes in the Region clearly face crises with insufficient funds.

CONCLUSIONS AND RECOMMENDATIONS

1. In future, the EAG will broaden the topics on which it will provide advice to include pertussis, hepatitis A and B, tuberculosis and disease caused by *Haemophilus influenzae* type b. The Regional Office should commission or prepare working papers on these subjects on which the EAG can then base its recommendations.
2. Notwithstanding the diphtheria epidemic in several Member States, all studies undertaken to date show that adult populations elsewhere are not well protected against this disease. The Regional Office should bring this dangerous situation to the attention of health ministers so that action can be taken before this or other epidemics spread through the Region. Health ministers should appreciate the benefits that would follow from the improvement of health through immunization, along with the potential political embarrassment from outbreaks of vaccine-preventable disease.
3. The EAG approved new operational targets that will facilitate the achievement of regional target 5. These new targets need to be included in the health strategies of Member States; the Regional Office should bring them to the attention of health ministers to ensure the necessary political and financial support.

4. Vaccine supplies remain critical in parts of the Region. A clear regional strategy is required; it should be integrated into that being developed by EPI in conjunction with the CVI Task Force on Global Vaccine Supplies.

5. Because the funds available are insufficient to achieve the objectives of the regional EPI by the dates that have been set, the Regional Office should seek additional funds for EPI within and, when necessary outside the Region. This would include meetings with donors at which the funding needs for both immunization programme management and vaccine supplies would be reviewed.

*Annex 1***OPERATIONAL TARGETS FOR EPI DISEASES****Deliberations of an Expert Group**

Target 5 of the regional strategy for health for all included the elimination of indigenous measles, congenital rubella, diphtheria, poliomyelitis, neonatal tetanus, syphilis and malaria from the European Region by the year 2000. In 1984, the participants at the Second Conference on Immunization Policies in Europe, held in Karlovy Vary, endorsed the target and set operational targets if the period up to 1990. The WHO Regional Committee for Europe modified target 5 in 1991, adding mumps to the list of diseases to be eliminated and removing syphilis and malaria. As the 1990 target date had passed, the Regional Office convened an Expert Group to review target 5 in the light of recent knowledge and experience and set new operational targets.

The Expert Group Meeting on Operational Targets for EPI Diseases was therefore held in June 1992, with the support of the SmithKline foundation. The Meeting was chaired by Dr D. Salisbury, Dr N. Begg served as Rapporteur, and Dr G. Oblapenko as Secretary.

Most countries have not reached the Karlovy Vary targets. Even in those that achieved their targets, disease elimination has been a more difficult task than had been believed. For measles, in particular, no country has achieved elimination.

The recent political upheavals in central and eastern Europe pose particular problems for the delivery of immunization programmes. Several countries, especially those of the former USSR, suffer from acute shortages of vaccines. Further, the number of Member States in the Region has increased considerably, with no corresponding increase in resources for the WHO Regional Office for Europe.

Any new targets that are set must be realistic and achievable. Experience has shown that the previous targets were too optimistic. Setting such targets undermines the credibility of WHO and risks damaging the confidence and support of national programme managers. The Expert Group based the targets that it proposed first and foremost on current scientific knowledge of the diseases and the vaccines available to protect people against them. The targets proposed include goals for reduced morbidity and operational targets on immunization coverage, disease surveillance and, where necessary, outbreak response.

Measles

Most of the targets on measles set at Karlovy Vary were not reached. The average immunization coverage for the Region is only 80%, lower than in three other WHO regions. Only eight countries in the European Region have achieved 95% coverage, and coverage remains below 80% in several others.

Even countries that have achieved very high coverage for many years have not eliminated measles. Outbreaks have been reported in populations with vaccination rates as high as 99%. Two-dose strategies have also failed to eliminate the disease.

The only approach that has not been used in the Region is mass immunization with the aim of interrupting transmission. To be effective, it would have to be carried out simultaneously in all countries and achieve high coverage. The exercise would have to be repeated periodically to prevent the reaccumulation of susceptibles, which would inevitably occur even at very high levels of coverage. Such campaigns could be extremely disruptive and expensive.

Eliminating measles will clearly be much more difficult than previously believed. Even if the financial resources existed, it is doubtful that the supply of high-quality vaccine would be adequate to achieve elimination in the short term (by the year 2000). Thus, while measles elimination should remain the long-term goal, it is more realistic and practical to set a target for the year 2000 of a substantial reduction in morbidity.

Congenital rubella

Similarly, most countries in the Region have failed to achieve targets for the elimination of congenital rubella. Surveillance is inadequate or non-existent in several countries, and rubella vaccine has yet to be formally introduced in the national programmes of 12 Member States. Where the vaccine has been introduced, the coverage levels reported range from 25% to 100%

The principles for the elimination of congenital rubella are clear.^a The first imperative is to protect women of childbearing age, and the second is to interrupt rubella transmission in young children. The new targets for the elimination of congenital rubella are designed to match those set for

^a Hinman, A.R. et.al. Rational strategy for rubella vaccination. *Lancet*, 1:39-41 (1983).

measles, as young children should be immunized against both with MMR vaccine.

Mumps

Mumps is less infectious than measles and transmission may be interrupted at relatively lower coverage levels. Nevertheless, the coverage targets for mumps match those for measles and rubella, as the MMR vaccine is used against all three. The cost-effectiveness of immunization against mumps justifies the inclusion of the disease in target 5.

Diphtheria

The widespread immunization of infants and preschool children with diphtheria toxoid since the 1940s has resulted in a dramatic decline in both clinical disease and carriage rates. Eliminating the disease should be possible. Human beings are the only known reservoir; the disease is seasonal and thus lends itself to outbreak control, and diphtheria toxoid is safe, effective and inexpensive.

There are also obstacles to elimination, however. The immunity gained from vaccination is not life-long and wanes unless boosted. Serological surveys have demonstrated gaps in immunity to diphtheria, particularly in adult populations. An asymptomatic carrier state exists, even in vaccinated populations. The disease is readily misdiagnosed in countries with a low incidence. The Expert Group considered these obstacles in proposing targets.

Diphtheria incidence reached an all-time low in 1980, when only 623 cases were reported in the Region, and at that time elimination seemed imminent. Two upsurges of diphtheria occurred, however: one during 1981-1985 and a second that began in 1990 and continues. This increase can be attributed almost entirely to the situation in the former USSR, from which 97% of the cases in the Region are now reported.

Poliomyelitis

Following the success of poliomyelitis control in the Region of the Americas, WHO set a target of global eradication by the year 2000. Many countries in the European Region have already eliminated the disease and have high levels of vaccination coverage. Thirteen countries have recently reported cases, however, and there are persistent foci of endemic wild poliovirus transmission in Bulgaria, Romania, Turkey, the former

Yugoslavia, and the central Asian and trans-caucasian countries of the former USSR. Interrupting transmission in these areas is the first priority. This requires a strong political and financial commitment, which has not been forthcoming. In contrast to the European Region, no confirmed case of wild poliovirus infection has been reported in the Americas for almost a year.

The reporting of poliomyelitis is well established throughout the Region. Active surveillance of acute flaccid paralysis will be essential to prove that the disease has been eradicated, but is still poorly developed. The ability to detect acute flaccid paralysis at a rate of not less than 1 per 100 000 in children is an indicator of the sensitivity of surveillance. Most countries now have laboratories capable of isolating and classifying polioviruses, although the strains can be typed as wild or vaccine-like in only a few countries. A European bank of polioviruses has been established.

Neonatal tetanus

The elimination of neonatal tetanus requires the achievement of tetanus immunity in women of childbearing age, along with improved maternity care, which includes the attendance of a trained person at every delivery.

A target has been set for the global elimination of neonatal tetanus by 1995. The disease has already been eliminated in most countries in the European Region, although surveys of immunity to tetanus in several countries have demonstrated gaps in women of childbearing age. The high proportion of institutional deliveries is the main reason for the absence of neonatal tetanus in most countries of the Region. Only 69 cases were reported during 1990, 67 of which occurred in Turkey. In Turkey, Portugal and the former Yugoslavia, a significant proportion (more than 5%) of deliveries takes place without a trained attendant.

Measles

1. The new target should be:

By the year 2000, there should be no deaths from indigenously acquired acute measles in the Region and the annual incidence of confirmed cases of measles in each country of the Region should be less than 1 per 100 000 population.

Operational targets

2. Countries that have achieved an immunization coverage of 90% should achieve more than 95% coverage by 2 years of age by 1995, and all other countries should do so by 1997.

No eligible child should remain unimmunized, as valid contraindications to measles vaccine^a apply to less than 1% of children,^b over 95% is a feasible operational target. High coverage in young children must be the first priority, although countries with high coverage at 2 years of age may wish to consider introducing a second dose of vaccine at 6–12 years to prevent outbreaks in adults or older children.

3. By 1997, no district in any country should have less than 95% immunization coverage at 2 years of age.

4. Measles should be a routinely notifiable disease in all countries of the Region. Countries where this is not the case should introduce surveillance of measles by the end of 1993.

Rash and fever occurring 5–14 days after vaccination should not be notified as they are usually associated with the vaccine and of no significance to public health.

5. By 1997, all countries in the Region should have efficient surveillance to identify all cases of measles. Reaching this target will require additional active measures to detect cases through death certificates and hospital and laboratory records, in addition to routine reporting.

6. Laboratory confirmation should be sought for all sporadic measles cases by 1995 in countries reporting less than 1 case per 100 000 population, and by 1997 in all other countries.

7. From 1997, susceptibility to measles should be less than 10% in all age groups.

Reaching this target will require serological surveillance; infants aged 6–11 months should be included in such surveys. Susceptibility in this age

^a Expanded Programme on Immunization. Contraindications for vaccines used in EPI. *Weekly epidemiological record*, 37:279–281 (1988).

^b Hewitt, M. Incidence of contraindications to immunisation. *Archives of diseases in childhood*, 64:1052–1053 (1989).

group may be expected to increase as a consequence of being born to women with vaccine-acquired immunity.

8. By 1997, all outbreaks of measles (this is, where two or more generations of transmission have occurred) should be investigated and appropriate control measures taken. These measures may include the identification and vaccination of susceptibles and lowering the age at which people are vaccinated.

Congenital rubella

9. The new target should be:

By the year 2000, no indigenous cases of congenital rubella syndrome and no laboratory-confirmed rubella infections in pregnant women should occur in the Region.

Operational targets

10. Countries that have already achieved immunization coverage of 90% by 2 years of age should achieve more than 95% coverage in both sexes by 1995; all other countries should do so by 1997.

11. By 1997, no district in any country should have less than 95% coverage at 2 years of age.

12. By 1995, every country in the Region giving rubella vaccine to schoolgirls should achieve 95% coverage.

It is essential that high coverage be achieved in young children, as low coverage will result in an increased number of cases in older children and adults, possibly with more cases of congenital rubella syndrome. Countries introducing rubella immunization in young children should ensure that the vaccine is also used to protect girls before puberty and women of childbearing age.

13. By 1995, every country in the Region should have a surveillance system capable of detecting all cases of congenital rubella syndrome.

In countries using only a selective vaccination strategy, rubella re-infections in pregnant women are likely to be detected as the sensitivity of surveillance improves.

14. By 1995, all pregnant women with rashes and all pregnant women in contact with rubella should be investigated serologically.

In countries where abortion is legal, rubella-associated terminations of pregnancy are a sensitive proxy for the impact of maternal rubella infections and should be routinely monitored.

Mumps

15. The new target should be:

By the year 2000, there should be no indigenous cases of mumps in the Region.

Operational targets

16. Countries that have already achieved 90% immunization coverage by 2 years of age should achieve more than 95% coverage by 1995; all other countries should do so by 1997.

17. By 1997, no district in any country should have less than 95% immunization coverage at 2 years of age.

As with rubella, high immunization coverage for mumps is essential, as low coverage will result in an increased age at infection and thus more complications.

18. Mumps should be a notifiable disease in all countries of the Region. Countries where this is not the case should introduce surveillance of mumps by the end of 1993.

Parotitis occurring in the third week after vaccination should not be notified, as it is associated with the vaccine and of no significance to public health.

19. By 1997, all countries in the Region should have efficient surveillance to identify all cases of mumps.

Diphtheria

20. The new target should be:

By the year 2000, there should be no indigenous cases of diphtheria in the Region.

Operational targets

21. By 1995, every country in the Region should achieve 95% coverage with the primary immunizations by 2 years of age.

22. By 1997, no district in any country should have less than 90% coverage with the primary immunizations at 2 years of age.

23. By 1995, every country should include a booster dose of a diphtheria-containing vaccine in children of school age (5–14 years) and achieve either 95% coverage or an immunity rate of 90% as determined by appropriate serological studies.

Countries not currently giving such a booster could consider the use of low-dose diphtheria vaccine in conjunction with tetanus vaccine at school-leaving age. In this situation, the resulting immunity would have to be assessed in young adults (aged 20–30 years).

24. All countries should have effective surveillance to ensure that no cases are missed, and laboratories able routinely to differentiate toxigenic from non-toxigenic strains.

25. By 1995, all reported cases of diphtheria should be classified as indigenous or imported.

26. By 1995, appropriate serological studies should assess the diphtheria immunity status of the adult population in all countries.

If the immunity rate in any ten-year age band, or social or ethnic group is found to be less than 75%, one or more booster doses should be given as appropriate.

27. The occurrence of a single case of diphtheria requires immediate control measures, such as isolation of the patient and the vaccination and chemoprophylaxis of contacts. During an outbreak, special measures must be taken, including mass immunization.

Poliomyelitis

28. The new target should be:

By the year 2000, or earlier if possible, indigenous poliomyelitis due to wild poliovirus should be eradicated from the Region.

Operational targets

29. By 1993, every country should have access to laboratory facilities for isolating, typing and characterizing polioviruses as wild or vaccine-like. A regional laboratory network is essential to support this virological activity.

30. By 1993, any country still having areas with cases due to wild virus should implement aggressive control strategies in addition to routine immunization activities.

31. In countries reporting less than 10 cases per annum, all people suspected of having poliomyelitis and their contacts should be fully investigated by viral culture of faeces by 1993; this must be achieved by all countries by 1995.

32. By 1995, all countries in the Region should have either surveillance of acute flaccid paralysis or other means of ensuring the detection of any case of poliomyelitis in any age group.

33. By 1995, every country in the Region should achieve 95% coverage with the primary immunization by 2 years of age.

34. By 1997, no district in any country should have less than 90% coverage for the primary immunization at 2 years of age.

Neonatal tetanus

35. The new target should be:

By 1995, there should be no neonatal tetanus in the Region.

Operational targets

36. All pregnant women should be able to deliver with the help of a trained attendant. In areas where this cannot yet be achieved, women of childbearing age, including pregnant women, should be targeted for immunization with tetanus toxoid.
37. By 1995, every country in the Region should achieve 95% coverage with the primary immunizations by 2 years of age.
38. By 1997, no district in any country should have less than 90% coverage with the primary immunizations by 2 years of age.
39. By 1995, every country should include a booster dose of tetanus-containing vaccine, in conjunction with diphtheria vaccine, in children of school age (5-14 years) and achieve 95% coverage.
40. All countries should report cases of neonatal tetanus separately from cases of tetanus.
41. By 1995, all countries should analyse all cases of tetanus by the age and sex of patients. This will allow the identification of risk factors for neonatal tetanus, that is, whether cases are occurring in women of child-bearing age.

PARTICIPANTS

Temporary Advisers

Dr Norman Begg

Consultant Epidemiologist, PHLS Communicable Disease
Surveillance Centre, London, United Kingdom (*Rapporteur*)

Professor Margareta Böttiger

National Bacteriological Laboratory, Stockholm, Sweden

Dr Sergei Litvinov

Chief of Department, Central Institute of Epidemiology, Moscow,
Russian Federation

Dr Stanislava Popova

Head, Communicable Diseases Department, Ministry of Public Health
and Social Care, Sofia, Bulgaria

Dr David Salisbury

Senior Medical Officer, Department of Health, London, United
Kingdom (*Chairperson*)

World Health Organization

Regional Office for Europe

Dr George Oblapenko

Medical Officer, Poliomyelitis Eradication (*Secretary*)

Dr Mark Tsechkovski

Director, Disease Prevention and Quality of Care

Mrs Loreta Colatosti

Programme Assistant, Communicable Diseases

Headquarters

Dr Artur Galaska

Medical Officer, Expanded Programme on Immunization

Dr François Gasse

Medical Officer, Expanded Programme on Immunization

*Annex 2***WORKING PAPERS^a**

ICP/ÉPI 012B/6	New role of WHO/EURO, by J.E. Asvall
ICP/EPI 012B/7	Latest developments on global EPI, by H. Zoffmann
ICP/EPI 012B/8	EPI in Europe in 1991–1992, by G. Oblapenko
ICP/EPI 012B/9	New operational targets for 1990s, by D. Salisbury
ICP/EPI 012B/10a	Global polio eradication in 1991–1992, by H. Hull
ICP/EPI 012B/10b	Polio eradication in Europe in 1991–1992, by G. Oblapenko
ICP/EPI 012B/11	EUROHEALTH project 2. Vaccine supply and modernization programme in Central and Eastern Europe and the former USSR. Status as of January 1993, by A. Kendal
ICP/EPI 012B/12	Attainment of HFA target 5 in Bulgaria, by S. Popova
ICP/EPI 012B/14	Attainment of HFA target 5. Vision of problems and possible solutions: Finland, by T. Hovi
ICP/EPI 012B/15	Immunization activities in the Russian Federation, by S.K. Litvinov
ICP/EPI 012B/16	Attainment of HFA target 5: the Netherlands, by H.P. Verbrugge
ICP/EPI 012B/17	Attainment of HFA target 5 in Germany, by J. Hallauer
ICP/EPI 012B/18	Funding of the regional EPI and fund raising, by J. Cheyne

^a Copies can be obtained from the Communicable Diseases unit, WHO Regional Office for Europe, Scherfigsvej 8, DK-2100 Copenhagen Ø, Denmark.

*Annex 3***PARTICIPANTS****Temporary Advisers**

Professor P. Bégué

Consultation de pédiatrie, Hôpital Trousseau, Paris, France
(*Vice-Chairperson*)

Professor S.R. Dittmann

Institut für Sozialmedizin und epidemiologie, Bundesgesundheitsamt,
Berlin, Germany

Dr Nicole Guérin

International Children's Centre, Paris, France

Dr J. Hallauer

Referatsleiter, "Hygiene u. Seuchenhygiene", Bundesministerium für
Gesundheit, Bonn, Germany

Professor Tapani Hovi

Department of Viral Diseases, National Public Health Institute,
Helsinki, Finland

Dr Sergei K. Litvinov

Chief of Department, Central Institute of Epidemiology, c/o Ministry
of Health, Moscow, Russian Federation

Dr Stanislavia Popova

Head, Department of Communicable Diseases, Ministry of Health,
Sofia, Bulgaria

Dr David M. Salisbury

Senior Medical Officer, Department of Health, London, United
Kingdom (*Rapporteur*)

Sir Joseph Smith

Director, Public Health Laboratory Service, London, United Kingdom
(*Chairperson*)

Dr Hans P. Verbrugge

Medical Officer for Maternal and Child Health, Department of the
Chief Medical Officer of Health, Rijswijk, Netherlands

World Health Organization

Regional Office for Europe

Dr J.E. Asvall

Regional Director for Europe

Mrs Loreta Colatosti

Programme Assistant, Communicable Diseases

Ms Johanna Kehler

Secretary, Poliomyelitis Eradication

Dr Alan P. Kendal

Adviser, CCEE Vaccine Programme

Dr George Oblapenko

Medical Officer, Poliomyelitis Eradication

Dr Colette Roure

Regional Adviser, Communicable Diseases

Dr Mark S. Tsechkovski

Director, Disease Prevention and Quality of Care

Headquarters

Mr J. Cheyne

Administrative Officer, Expanded Programme on Immunization

Dr H. Hull

Medical Officer, Expanded Programme on Immunization

Dr H. Zoffmann

Deputy Director, Expanded Programme on Immunization