The Expanded Programme on Immunization
in the European Region of WHO

Diphtheria

Plan of Action
for the Prevention and Control
of Diphtheria in the European Region
(1994 –1995)

Copenhagen 1994

ICP/EPI 038(A)
Distribution: General
Original: English

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.

Keywords

DIPHTHERIA – prevention and control
IMMUNIZATION
EUROPE
CCEE

All rights in this document are reserved by the WHO Regional Office for Europe. The document may nevertheless be freely reviewed, abstracted, reproduced or translated, but not for sale or for use in conjunction with commercial purposes. The WHO name and emblem are protected and may not be used on any reproduction or translation of this document without permission. Any views expressed by named authors are solely the responsibility of those authors. The Regional Office would appreciate receiving three copies of any translation.

51139

The Expanded Programme on Immunization in the European Region of WHO

Plan of Action for the Prevention and Control of Diphtheria in the European Region (1994 –1995)

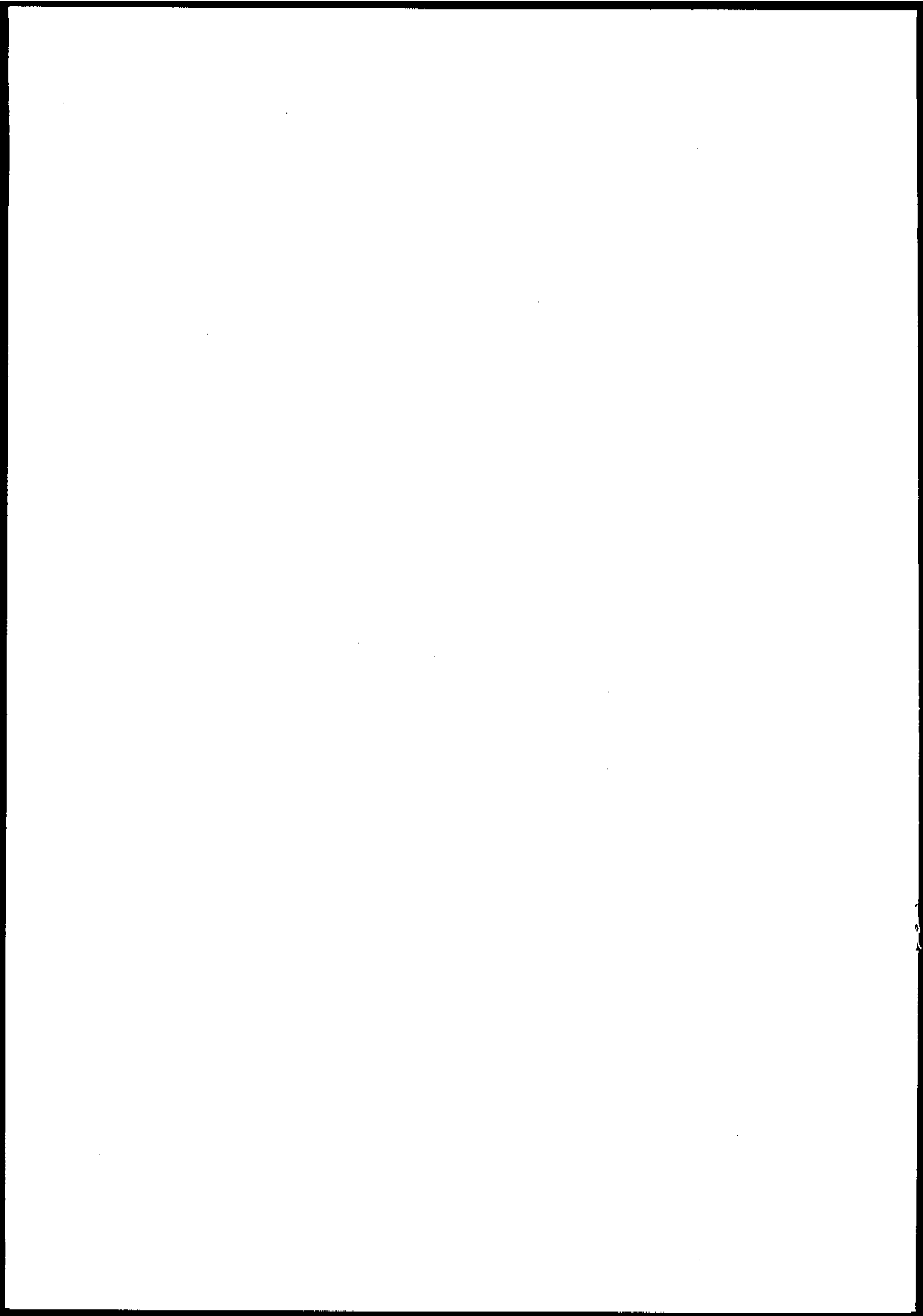
by
Professor Sieghart Dittmann
WHO Consultant

and

Dr Colette Roure
WHO Regional Adviser for
Communicable Diseases

ICP/EPI 038(A)
Distribution: General
Original: English

EUR/HFA target 5



CONTENTS

SECTION 1

Objectives of the Plan of Action and WHO action against Diphtheria.

1.1 Scope, purpose, and objectives of the WHO Plan of Action

1.2 Diphtheria situation in the European Region

1.3 Projection for 1994

1.4 WHO action

SECTION 2

Surveillance, prevention and control of diphtheria in the European Region

2.1 Recommended strategies for countries with diphtheria epidemics

2.1.1 Management

2.1.2 Surveillance

2.1.3 Prevention and control

2.1.4 Social mobilization

2.1.5 Training

2.1.6 Resource requirements and logistics

2.2 Recommended strategies for non-epidemic countries

SECTION 3

Role of WHO and other organizations, time-table and resource requirements

3.1 Role of the WHO Regional Office for Europe

3.2 Role of other organizations

3.3 Table 1. Time-table for diphtheria prevention and control activities in the European Region

3.4 Resource requirements for diphtheria prevention and control activities in the European Region

Annex 1. Terms of Reference of the European Task Force on Diphtheria

SECTION 1

Objectives of the Plan of Action and WHO action against Diphtheria

1.1 Scope, purpose and objectives of the WHO Plan of Action

The current diphtheria epidemic in the eastern countries of the WHO European Region must be considered most serious, and makes coordinated support for the affected countries an international priority. The WHO European Office has therefore created the European Task Force on Diphtheria Control and adopted a 'Plan of Action for Diphtheria Control in the European Region. Furthermore, two technical WHO manuals have been elaborated and will be issued (in English and Russian) by April 1994: the WHO manual for the management and control of diphtheria and the WHO manual for the laboratory diagnosis of diphtheria[1]
Undertaking these activities, the Regional Office will focus particularly upon countries experiencing diphtheria epidemics and outbreaks in their fight against the disease. According to the Plan of Action, countries with a diphtheria epidemic should make national action plans for 1994-1995 and implemented them in close cooperation with WHO. The Plan of Action includes estimates of resource requirements for diphtheria control in such countries, with particular emphasis on vaccines, antisera and antibiotics.

National action plans should be urgently approved and implemented in Member States experiencing countrywide diphtheria epidemics. Countries with increasing numbers of diphtheria cases should prepare similar national action plans.

In addition, the WHO Plan of Action and manuals give recommendations on diphtheria prevention in the other countries of the Region, in which importation of diphtheria must be expected or have already occurred.

The objectives of the WHO Plan of Action are:

- The reduction of diphtheria morbidity to pre-epidemic level by 1996
- The reduction of case fatality rate to less than 2% by 1995

1.2 Diphtheria situation in the European Region

Widespread immunization with diphtheria toxoid had resulted in the virtual elimination

[1]These manuals (document ICP/EPI 038) can be obtained in English and Russian from the Communicable Diseases unit, WHo Regional Office for Europe, Scherfigsvej 8, DK-2100 Copenhagen Ø, Denmark

of diphtheria in many European countries by the 1970's. A low of 623 reported cases was reached in 1980. Since 1989/1990, a major resurgence of diphtheria has been observed in the Region, centered mostly in the Russian Federation and Ukraine.

In the European Region, the epidemics in eastern countries caused a dramatic increase in diphtheria incidence figures. In 1990, 3170 cases were registered; one year later the number had increased to 5788 and increase of 83%, and in 1993, 19 046 cases were registered an increase of 229%. Cases in Russia accounted for 80%, those in Ukraine accounted for 16%, and those in other newly independent states (NIS) of the former USSR accounted for 3%, of all cases reported in the European Region 1993.

In **Russia,** 1214 cases were reported in 1990, 1869 cases in 1991, 3897 cases in 1992 an increase of 109%, and 15211 cases in 1993 an increase of 290%. While the number of cases doubled within 12 months between 1991 and 1992, between 1992 and 1993 the number of cases doubled within 8 months. In 1993, the morbidity of diphtheria in Russia was 10.15 per 100 000, somewhat higher in the group aged from 1 - 14 years (about 12 per 100 000) and somewhat lower in people older than 14 years of age (about 9 per 100 000). Diphtheria cases were reported from nearly all regions. In 1992, 20 out of 78 regions and autonomous republics reported higher incidence than the average.The highest rates were observed in regions with the highest population density: Moscow, St Petersburg and the Leningrad region. In Moscow, 49 outbreaks (including 4 outbreaks in 3 institutions) occurred in 1992, in contrast to 7 outbreaks in 1989. In St Petersburg, 10% of cases were in clusters (psychiatric hospitals, preschool institutions and large families). All age groups were involved. In 1992, 73% of cases occurred in people older than 14 years of age. The case fatality rate is high: on average, 5%. Unvaccinated people had more severe disease and a higher case fatality rate.
Health care staff, public transport employees, homeless people and alcoholics have been found to be at higher risk for diphtheria.
In 1992, immunization coverage of infants (DPT3) was found to be below 80% in 25 out of 70 regions, below 60% in 6 out of 70 regions, and around 45% in Moscow.

In **Ukraine,** 1101 cases of diphtheria were reported in 1991, 1553 cases in 1992 an increase of 41%, and 2987 cases in 1993 an increase 92%. The number of reported cases seems to have been relatively stable over the four quarters of 1993. The morbidity in 1993 was 5.7 per 100 000. The highest morbidity was reported from urban areas (Kiev, Odessa, Lvov): 4.4 - 9.6 per 100 000. Adolescents and adults over 14 constitute 70 to 80% of total cases reported. Serosurveys showed that approximately 40% of adults aged 28 years of age and older had no detectable antibodies. While adults constitute a larger proportion of total cases, the case fatality rate was higher for children (9.6%) than in adolescents and adults (3.45%). In Ukraine, the Ministry of Health coordinates anti epidemic measures.

In the other **NIS**, all except Armenia and Turkmenistan reported diphtheria cases in 1992. The 'zero' reports to WHO, however, cover only the period from January to July 1993. The highest numbers of cases were reported from Azerbaijan (morbidity 2 per 100 000), Belarus (1 per 100.000), Kazakhstan (0.3 per 100 000), Moldova (0.5 per 100 000), Tajikistan (4 per 100 000), and Uzbekistan (0.2 per 100 000).

Of the other countries of the regions Turkey reported 69 cases, and 11 other countries, including the 3 Baltic states reported sporadic diphtheria cases in 1993. Cases investigated in 1992 and 1993 in Bulgaria, Estonia, Germany, Latvia, Lithuania, Norway and Poland, showed epidemiological links with Belarus Kazakhstan Russia andUkraine.

The reasons for the resurgence of diphtheria epidemics in the eastern countries of the region seem to be:

- low immunization coverage among infants and children in many areas of the countries
- a gap in immunity among adults;
- large population movements in recent years which could contribute to the wide spread of *C. diphtheriae* around the countries;.
- other hypotheses, including changes of the causative agent or its toxin.

In addition, coordinated and aggressive anti-epidemic measures, especially mass immunizations in children and adults at high risk, were missing in many areas. Paediatricians and all other physicians were insufficiently sensitized to the danger of the disease and the need for proper diagnosis, case management and management of close contacts. The general public was not well enough informed on the danger of disease and the benefits of immunization. Finally vaccine, antisera and antibiotics were lacking in many areas.

The diphtheria toxoids used in all the NIS appear to have met WHO recommendations on quality and potency.

1.3 Projections for 1994

In **Russia** consideration of the trend in diphtheria between 1990 and 1993 and of the sub optimal coordination and application of control strategies, suggests that more than 30 000 cases could be expected to occur in 1994. This projection could be somewhat reduced for 1994 and clear further improvements made for 1995 through countrywide and coordinated implementation of aggressive control activities.

In **Ukraine** coordinated control activities at the national and regional levels supported by the international community, have helped to slow the further spread of diphtheria. Increased efforts in 1994 and continued international support could further affect the trend of the diphtheria epidemic, and fewer than 2000 cases could be expected to occur in 1994.

In **other countries with diphtheria outbreaks,** evaluation and prognosis are difficult, owing to the partial incompleteness of data. Migration and close connections with other NIS on the one

hand, and shortages of vaccines, antibiotics and diagnostic media on the other, could form the basis for the worsening of the current situation. Coordinated control measures and continued international support are urgently needed to prevent the further spread of diphtheria.

The current situation and outlook for diphtheria in the European Region, in contrast to other Regions, is most serious, making coordinated control actions a region-wide priority.

1.4 WHO action

When diphtheria morbidity increased in the former USSR in late 1990, the Fifth Meeting of the European Advisory Group on the Expanded Programme on Immunization (EPI), held in Athens on 15-17 January 1991, discussed the issue and recommended that the WHO Regional Office for Europe should offer the services of a small team who could work with the authorities to investigate diphtheria outbreaks and help develop suitable control measures in Russia. A WHO team visited Moscow from 18 February to 1 March 1991, analysed the situation and made recommendations for diphtheria control with representatives of the Ministry of Health. A draft report was submitted to the Ministry of Health in April 1991, and the final report was sent on 3 December 1991.

From 23 to 27 March 1992, the director of EPI at WHO Headquarters and staff of EPI in the Regional Office for Europe, visited Russia and discussed the measures to be taken to control diphtheria with the local authorities.

In January 1993, a WHO team visited Moscow and discussed measures to control the diphtheria epidemic with representatives from the State Committee for Sanitary-Epidemiological Surveillance. The national authorities were requested to calculate the vaccine needs in order to ensure a large-scale immunization programme of adults in the population.

In February 1993, WHO organized a consultation mission to Russia of epidemiologists from the Centers for Disease Control in the United States.

From 5 to 7 July 1993, a seminar on diphtheria was held in St Petersburg, co-organized by WHO and the Merieux Foundation, France. The meeting provided the opportunity for group discussion by the key scientists, policy-makers and physicians responsible for diphtheria control in Russia, Ukraine, Belarus and other countries already affected by the epidemic or subject to the import of cases. The meeting provided the opportunity to initiate a laboratory working group which is planned to meet on 21 to 22 April 1994 in London.

In November 1992, WHO requested the Ministry of Health to analyze the situation in **Ukraine** and to present the results during the European Meeting of National EPI Programme Managers from Central and Eastern Europe, which was held in Milan, Italy. In November 1992, WHO organized a visit to Ukraine by a team from the Centers for Disease Control. In August 1993, a representative of the Regional Office for Europe visited the country to review the situation and to advise on control strategies.

In September 1993, a national workshop on the optimization of the immunization schedule and the contraindications to immunization was held in Kiev. The participants included WHO staff and experts from different countries. In cooperation with the Ukrainian health authorities and international donor organizations , WHO prepared a special document on vaccine supply.

In other NIS, REACH[2]/WHO teams conducted workshops and seminars and assisted in the preparation of immunization plans for Kyrgysztan and Uzbekistan (December 1992), Turkmenistan (June 1993) Tajikistan (July 1993), Moldava (October 1993) and Georgia (November 1993). In addition, WHO organized a meeting and mid-level training course in Kazakhstan in May 1993. These activities resulted in a proposal of immunization schedule and a revision of the list of contraindications to immunization. All workshops and seminars included sessions devoted to diphtheria control.

Meetings to discuss and to coordinate efforts for **vaccine supply for the NIS**, organized by WHO with the support of donor countries and nongovernmental organizations, were held in Copenhagen (March 1993 and April 1993), Kiev (September 1993), Vilnius (October 1993) and Bishkek (October 1993). Owing to these activities, many NIS received financial support and vaccines to sustain the basic immunization of children below 2 years of age.

---

[2]Resources for Child Health

SECTION 2

Surveillance, prevention and control of diphtheria in the European Region

2.1 Recommended strategies for countries with diphtheria epidemics

The National Committee on Diphtheria Control should prepared and approve a national plan of action. The action plan should cover the following areas:

(a) **management of diphtheria control** (including the role of the national committee on diphtheria control, the national coordinator and regional/district coordinators where appropriate);

(b) **surveillance**:
- epidemiology and epidemiological analysis;
- monitoring the diphtheria immunization programme;
- identification of groups and areas of high risk;

(c) **prevention and control activities:**
- case management
- case investigation
- identification and treatment of close contacts;
- routine immunization of children;
- immunization of adults in high-risk areas and groups at high risk;

(d) **social mobilization and communication with the mass media;**

(e) **training**;

(f) **resource requirements and logistics**;
- vaccine supply;
- antisera;
- antibiotics;
- needles and syringes;
- cold chain equipment;
- other requirements.

2.1.1 Management

The national plan of action should clearly specify the objectives of all activities and give a precise schedule for each. At the national level, the ultimate responsibility for planning and coordination of countrywide diphtheria control operations should rest with a national committee on diphtheria control chaired by the Minister of Health and consisting of people representing

services that have to play an active role during the epidemic, as well as appropriate experts. While the committee should be as small as practicable, depending on the administrative organization of the country concerned, its member may need to include representatives of, for example:

- senior officials of the public services, e.g. Finance, transport, communications, police and armed forces;
- health service staff, e.g. specialists in immunization, epidemiological surveillance, infectious disease medicine, paediatrics and microbiology;
- pharmacists responsible at the national level for the supply of vaccines, drugs etc.;
- the mass media;
- representatives of the regions and districts most affected; and
- (on an ad hoc basis) international organizations such as the World Health Organization, the United Nations Children's Fund ,the United Nations Development Programme, government and nongovernmental organizations such as United States Agency for International Development, the International Federation of the Red Cross, Médecins sans Frontréres and the Center for Disease Control.

The national committee on diphtheria control is responsible for planning and coordination, and the national coordinator for the control of diphtheria' (see below) should act as its secretary. The health service specialists working as members should prepare the decisions of the committee, in close collaboration with the secretary.

Based on the decisions of the national committee, the responsibility for implementing countrywide diphtheria control operations should rest with a single person in the health service, identified by a title, such as **National Coordinator for the Control of Diphtheria**. The coordinator appointed should be a physician of recognized competence and his authority and responsibilities **clearly defined**. His or her field of competence should cover as much as possible of the following: management experience, epidemiology of infectious diseases, relevant aspects of infectious disease medicine and laboratory diagnosis.

The coordinator should be supported by an appropriate staff recruited from within the national administrative structure.

The management and organization of diphtheria control at administrative levels such as regions, districts or cities should follow national policies, if the diphtheria situation requires coordinated action.

2.1.2 Surveillance

The organization of surveillance activities should follow the guidelines provided in the WHO manual for the management and control of diphtheria. The methodology of diagnostic work in diphtheria should follow the guidelines provided in the WHO manual for laboratory diagnosis of diphtheria.

2.1.3 Prevention and control

Diphtheria epidemics can be controlled by the application of well recognized measures. The basic principles are:

- high vaccine coverage in target groups;
- early diagnosis and proper management (immediate treatment and hospitalization) of diphtheria cases;
- rapid investigation of close contacts of people with diphtheria and their effective standardized treatment to prevent secondary cases.

The three basic principles are well known but not properly implemented everywhere. Diagnosis and hospitalization in Russia were usually late. In St Petersburg, only 7% of people with diphtheria were hospitalized during the first two days after the onset of disease; more than 80% were hospitalized 4 to 10 days after the onset of disease.
In 6 analysed diphtheria deaths, patients were referred for treatment at 8, 10 or even 40 days after the onset of disease.

The Three basic principles should be applied as follows;

Achieving high vaccine coverage in target groups primarily means achieving and maintaining high coverage in children through routine immunization.

- Every district should achieve 95% coverage with the primary immunization (DPT3) by 2 years of age.
- Every district should include a booster dose or doses of a diphtheria-toxoid-containing vaccine in children of school age and achieve 95% coverage.In addition, mass immunization should be carried out in schools and preschool institutions to ensure that all children are well protected against diphtheria. This requires the completion of the primary immunization course in non-immunized or incompletely immunized children, and the administration of a booster dose for fully immunized children if the last injection was given more than 5 years previously.

Furthermore, mass immunization, using diphtheria-toxoid-containing vaccines (preferably Td), should be carried out for adults older than 25 years of age belonging to groups at high risk.

These people include:

- health care workers
- armed forces
- employees of transportation services with frequent public contact
- teachers and the staff of kindergartens, crèches, and similar institutions
- homeless people
- alcoholics.

While most people in groups at high risk can easily be reached for immunization by proper organization within the service to which they belong, homeless people and alcoholics can be much more difficult to reach. Special attention must be given to social care institutions and to the involvement of nongovernmental organizations which have developed special programmes for homeless people.

If the epidemiological situation requires, the whole adult population should be included in mass immunization.

Immunization days, immunization centres and mobile immunization points should be used. Work on a house-to-house basis could be very useful in villages and small towns. The key to success is proper preparation, in collaboration with local mass media and local organizations.

A long list of **contraindications for diphtheria immunization** will seriously damage all efforts to control epidemics. The risk of disease outweighs by far the risk of adverse effects of immunization. The list of contraindications developed by WHO should be the basis for national recommendations. Leaflets on all diphtheria-toxoid-containing vaccines urgently need revision. Contraindications for the use of diphtheria-toxoid- or diphtheria-tetanus-toxoid containing vaccines are severe adverse reactions (anaphylaxis, collapse, shock) after a previous dose. If a simple febrile reaction followed previous doses, further immunization should not be withheld. Advice should be given to prevent recurrence with the use of antipyretic or anticonvulsive drugs.

The second principle is early diagnosis and proper management of diphtheria cases. The management of diphtheria cases includes :

- the prompt recognition of suspected diphtheria cases;

- the prompt and qualified collection and shipment of specimens for laboratory examination;

- prompt standard treatment with diphtheria antitoxin antibiotics; and

- the notification of the case to the local health authorities.

Rapid investigation and standard treatment of close contacts is the next step to control the further spread of diphtheria. The effective management of close contacts includes:

- clinical surveillance for seven days from the date of the last contact with the case;

- laboratory investigation;

- standardized treatment with antibiotics; and

- immunization if their immunization status is incomplete or unknown.

Details of control measures regarding

- *immunization*
- *early diagnosis and proper management of cases*
- *rapid investigation of close contacts and their effective treatment to prevent secondary cases*

are described in the WHO manual for the management and control of diphtheria'.

2.1.4 Social mobilization

The general public should be informed on the danger of the disease and the benefits of immunization. An aggressive and comprehensive programme of social mobilization should be launched to combat the lack of information or misinformation about diphtheria and diphtheria immunization. This programme should widely involve the popular media. The key messages should be simple, short and clear. These messages should be developed and refined studies of the knowledge, attitudes and practices of the public. Experts should respond promptly to any misleading information given in the media.

2.1.5 Training

A programme is urgently needed to reorientate and educate health workers at all levels of training, including paediatricians and neuropathologists, about the benefits and the importance of immunization, and about contraindications for and adverse effects of immunization.

Training for medical staff at the national and regional level should cover the following topics:

- diphtheria prevention and control;
- case management, clinical diagnosis, treatment and identification of preventive measures for contacts;
- laboratory diagnosis.
- the use of popular media.

2.1.6 Resource requirements and logistics

Needs for antibiotics, needles and syringes, and vaccines for both routine and additional immunization should be carefully estimated. These needs and the existing delivery system, facilities, cold-chain and transport resources, should be considered in planning storage and distribution.

A breakdown of estimated resource requirements for the Region is presented in Tables 2 - 5. Countries should use this presentation to elaborate their resource requirements for 1994 and 1995.

2.2 Recommended strategies for non-epidemic countries

Countries facing increasing number of diphtheria cases should prepare a national plan of action using the principles mentioned above. Management and outbreak control activities should be based on the guidelines provided in the WHO Manual for Management and Control of Diphtheria and in the WHO manual for laboratory diagnosis of diphtheria. Special emphasis should be placed on diphtheria surveillance to ensure that every case is identified and examined in a diphtheria laboratory. Cases should be classified as indigenous or imported.

Countries should urgently implement the recommendations of the Fifth Meeting of European National Programme on EPI Managers which was held in 1993:

- every country should achieve 95% coverage with the primary immunization by 2 years of age;
- every country should include a booster dose of a diphtheria-toxoid-containing vaccine in children of school age and achieve either 95% coverage or an immunity rate of 90% as determined by appropriate serological studies;

- as early as possible, every country should include diphtheria immunization, preferably as Td, for adults travelling to known high-risk areas and for immigrants and refugees from known high-risk areas; general adult immunization is not required but Td immunization should be given instead of tetanus toxoid in cases of wound prevention against tetanus;

- countries should consider serological studies to assess the diphtheria immunity status in their population or in areas or groups suspected to be at risk; and

- all countries should have effective diphtheria surveillance to ensure that every case is identified, and access to laboratories to differentiate toxigenic from non-toxigenic strains; all cases should be classified as indigenous or imported.

SECTION 3

Role of WHO and other organizations, time-table, resource requirements

3.1 Role of the WHO regional office for Europe

To accelerate progress towards controlling the diphtheria epidemics in some European Member States and reducing the danger of their spreading to other countries, within and outside the European region, the WHO Regional Office for Europe created a European Task Force on Diphtheria Control in February 1994. Its terms of reference and composition are given in Annex 1.

Countries experiencing diphtheria epidemics and outbreaks will be supported in laboratory diagnosis of diphtheria through the European network of diphtheria laboratories.

3.2 Role of other organizations

Based on the urgent needs evident in 1992 and 1993, countries, UNICEF, USAID and many other donor organizations provided vaccines to NIS. In addition producers in Russia sent vaccine supplies to other NIS. Coordinated action to ensure vaccine supply is planned for 1994 and necessary for 1995.

3.3 Time-table

The time-table for the implementation of the WHO Plan of Action for the Prevention and Control of Diphtheria in the European Region is presented in Table 1. The time-table covers activities planned for 1994. The time-table for 1995 will be elaborated by September 1994.

Table 1. Implementation of WHO Plan of Action on Diphtheria Control Time-table 1994

Activity	WHO	Russia	Ukraine	other NIS	other European countries
Meetings of the European Task Force on Diphtheria Control	23.2.,28.4., 3rd, 4th quarter 94				
Finalization WHO Action Plan	15.3.1994				
Finalization WHO Manual on Management and Control of Diphtheria	15.3.1994				
Supply meeting WHO/UNICEF	14-16.3.94 Paris				
Russian translation of Action Plan WHO Manual	30.3.1994				
Finalization WHO Manual on Laboratory Diagnosis of Diphtheria	15.4.1994				
WHO/EURO Meeting, Heads of Diphtheria Laboratories	21-22.4. London				
Recruitment of STP on diphtheria in NIS, and of STP vaccine supply (RO)	April 1994				
Recruitment STP diphtheria (part-time), Regional Office	May 1994				
Elaboration and Adoption of National Plans of Action incl resource requirements		15.5.1994	30.4.1994	depending on situation	
Implementation of WHO recommendations on diphtheria prevention in all non-epidemic European countries					1994
Russian translation of WHO Manual on Laboratory Diagnosis of Diphtheria	15.5.1994				
Distribution of WHO Manual on Management and Control of Diphtheria		15.4.1994	15.4.1994	15.4.1994	15.4.1994
Distribution of WHO Manual on Laboratory Diagnosis of Diphtheria		30.5.1994	30.5.1994	30.5.1994	30.5.1994
Workshops for diphtheria control coordinators at national and regional level		June/July 1994	April 1994	depending on needs	
Follow-up supply meeting with interested parties					
Progress report on diphtheria control	Regional Committee Sept 1994				
Elaboration of time-table 1995 for the implementation of the Plan of Action incl resource requirements	Sept 1994				

3.4. Resource requirements

Based on the recommended strategies, resource requirements are estimated
as follows (see Tables 2-5). Considering these estimations, countries should elaborate national resource requirements for 1994 and 1995.

Table 2. ESTIMATED VACCINE NEEDS 1994 (DPT/DT or Td) (1000s of doses, wastage factor 1.3) RUSSIA, UKRAINE, and other NIS

	TOTAL NEED	EXPECTED OWN PRODUCT-ION	EXPECTED SALE (as in 1993) BY RUSSIA[5]	DONATED 1993[6]	EXPECTED DONATIONS 1994	COST (USD) OF EXPECTED DONATIONS[7]
1. RUSSIA						
Routine immunization						
infants (DTP3)	9100	100%				
children (DTP4)	3000	100%				
children (DT at school age)	3000	100%				
Supplementary immunization						
immunization of close contacts[1]	910	100%				
children not or not fully immunized[2]	20000	100%				
adults (Td for persons at high risk)[3]	50000	20%			40000	2 800 000
2. UKRAINE						
Routine immunization	4670		2175	2125	2495	175 000
infants (DTP3)	2800					
children (DTP4)	935					
children (DT at school age)	935					
Supplementary immunization						
immunization of close contacts[1]	65				65	4 550
children not or not fully immunized[2]	6175				6175	432 000
adults (Td for persons at high risk)[3]	18700				18700	1 310 000
3. Other NIS4[4]						
Routine immunization	9000		1030	4800	8000	560 000
infants (DTP3)	9000					
Supplementary immunization						
immunization of close contacts[1]	50				50	3 500
						5 285 050

[1] approximately 10 close contacts per 1 diphtheria case, receiving 2 doses of DT/Td vaccine
[2] appr. 30% of children below 14 years of age, receiving 2 doses of DT vaccine
[3] appr. 20% of adults at high risk (risk groups, areas of risk), receiving 2 doses of Td vaccine
[4] ARM,AZ,BEL,GEO,KAZ,KYR,MOL,TAD,TURK,UZ; Baltic states
[5] Sales (1993) to Belarus, Moldava, Ukraine, Uzbekistan
[6] Excluding donations to the Baltic states
[7] UNICEF prices: DTP 7 cts per dose, DT 5 cts per dose, Td 7 cts per dose

Table 3. ESTIMATED DIPHTHERIA ANTITOXIN NEEDS 1994

RUSSIA, UKRAINE, and other NIS

	TOTAL UNITS NEEDED[1]	EXPECTED OWN PRODUCTION	EXPECTED DONATIONS	COST OF EXPECTED DONATIONS[2]
1. <u>RUSSIA</u>				
treatment of 50.000-100 000 suspected cases	50.000-100.000	80%	20.000 units	140.000 USD
2. <u>UKRAINE</u>				
treatment of 5.000-10.000 suspected cases	5.000-10.000		5.000-10.000 units	35.000-70.000 USD
3. <u>Other NIS[3]</u>				
treatment of 2.000-5.000 suspected cases	2.000-5.000		2.000-5.000 units	15.000-35.000 USD

Estimated total costs of diphtheria antitoxin needs for Russia, Ukraine, and other NIS:

200.000 - 250 000 USD.

Remarks:

[1] treatment: 10.000-40.000 units antitoxin (average 20.000 units)

[2] UNICEF prices: 40.000 units 15 USD, 10.000 units 3.50 USD (average 7 USD)

[3] ARM, AZ, BEL, GEO, KAZ, KYR, MOL, TAD, TURK, UZ; Baltic states

Table 4. ESTIMATED NEEDS for ANTIBIOTICS 1994 RUSSIA, UKRAINE, and other NIS

	Penicillin[1,2]	Erythromycin[3,4]	Expected donations	Cost (USD) of donations
1. RUSSIA				
Antimicrobial therapy - 24 000 cases in adults - 6 000 cases in children	for 50% of cases: -12 000 cases need 144 000 million units - 3 000 cases need 20 000 million units	for 50% of cases: -12 000 cases need 240 000 g -3 000 cases need 30 000 g	50 %	12 500 (P) 1 800 (P) 19 250 (E) 2 400 (E) 35 950 (Total)
Antimicrobial prophylaxis for close contacts approx. 300 000 contacts	for 50% of contacts: -120 000 contacts > 6 yrs: 144 000 million units; - 30 000 contacts <6 yrs: 18 000 million units	for 50% of contacts: -100 000 adult contacts: 700 000 g; - 50 000 contacts (children): 175 000 g	50%	12 000 (P) 1 500 (P) 57 500 (E) 15 000 (E) 86 000 (Total)
2. UKRAINE				
Antimicrobial therapy - 3 000 cases in adults - 1 000 cases in children	for 50% of cases: - 1 500 cases need 18 000 million units - 500 cases need 3 500 million units	for 50% of cases: - 1 500 cases need 30 000 g - 500 cases need 5 000 g	100%	3 000 (P) 600 (P) 4 800 (E) 800 (E) 9 200 (Total)
Antimicrobial prophylaxis for close contacts approx. 40 000 contacts	for 50% of contacts: - 16 000 contacts > 6 years: 19 000 million units - 4 000 contacts < 6 years: 2 400 million units	for 50% of contacts - 14 000 adult contacts: 100 000g - 6 000 contacts (children): 21 000g	100%	3 200 (P) 400 (P) 16 000 (E) 3 600 (E) 23 200 (Total)
3. Other NIS				
Antimicrobial therapy - 2 000 cases in adults - 500 cases in children	for 50% of cases: - 1 000 cases need 12 000 million units - 250 cases need 1 750 million units	for 50% of cases: - 1 000 cases need 20 000 g - 250 cases need 2 500 g	100%	2 000 (P) 300 (P) 3 200 (E) 400 (E) 5 900 (Total)
Antimicrobial prophylaxis for close contacts approx. 25 000 contacts	for 50% of contacts: - 10 000 contacts > 6 years: 12 000 million units - 2 500 contacts < 6 years: 1 500 million units	for 50% of contacts - 8 000 adult contacts: 56 000g - 4 500 contacts (children): 15 750g	100%	2 000 250 9 200 2 700 14 150 (Total)
				174 400 USD

[1] **Penicillin treatment:**
adults: - 1.2 million units/d for 6 days, and 600 000 units/day for 8 following days
- total: 12 million units procaine penicillin (i.m.) per case = approx. 2 USD
children: - 600 000 units/day for 6 days, and 400 000 units/day for 8 following days
- total: 6.8 million units per case = approx. 1.20 USD

[2] **Erythromycin treatment:**
adults: - 2g/day for 6 days, and 1g/day for 8 following days
- total: 20g per case = approx. 3.20 USD
children: - 1g/day for 6 days, and 0.5g/day for 8 following days
- total: 10g per case = approx. 1.60 USD

[3] **Penicillin prophylaxis:**
> 6 yrs: - single dose of 1.2 million units benzathine penicillin i.m. = appr. 0.20 USD
< 6 yrs: - single dose of 600 000 units = approx. 0.10 USD

[4] **Erythromycin prophylaxis**
adults: - 1g/day for 7 days = 7g per contact = approx. 1.15 USD
children: - 0.5g/day for 7 days = 3.5g per contact = approx. 0.60 USD

Table 5. SUMMARY

ESTIMATED COSTS FOR DONATED VACCINES, ANTISERA, ANTIBIOTICS, NEEDLES and SYRINGES

(USD)

RUSSIA, UKRAINE, and other NIS

1994

	Vaccine	Antisera	Antibiotics	Total
RUSSIA	2 800 000	140 000	122 000	3 060 000
UKRAINE	1 921 550	35-70 000	32 400	2 000 000
other NIS	563 500	15-35 00	20 050	610 000
Total	5 285 050	200-250 000	174 000	**5 700 000**

There is no experience estimating the need for syringes and needles to be donated.

Considering requirements for 10 to 40 millions of disposable syringes and needles to be donated

(UNICEF prices for 100 disposable syringes: 2 USD, for 100 disposable needles: 1.78 USD),

an additional cost of 380 000 to 1 500 000 USD could be estimated.

ANNEX 1

Terms of reference of the European Task Force on Diphtheria Control

1. The main goal in creating WHO's European Task Force on Diphtheria Control is to accelerate progress towards controlling the diphtheria epidemics currently occurring in some Eastern European countries and reducing the danger of diphtheria spread to other European and non-European countries. The Task Force will work in close cooperation with the Member States of the European Region. The work of the Task Force is an integrated part of Target 5 of the regional HFA 2000-strategy: 'By the year 2000, there should be no indigenous cases of diphtheria ... in the Region.'

2. The Task Force will focus the work on those countries where currently diphtheria epidemics occur

3. The Task Force will:

3.1 review the diphtheria situation in the Region with particular emphasis to countrywide diphtheria epidemics and
diphtheria outbreaks

3.2 review the progress and constraints of surveillance and control activities in the countries with diphtheria epidemics
and outbreaks

3.3 monitor and coordinate diphtheria prevention and control activities in all countries of the Region

3.4 foster national plans of action for the prevention and control of diphtheria epidemics

3.5 support the implementation of technical recommendations of the European Advisory Group on EPI on diphtheria prevention and control

3.6 ensure support, in close cooperation with national authorities, for the organization of workshops on diphtheria control in countries with diphtheria epidemics and outbreaks

3.7 collaborate continuously with National Diphtheria Control Committees or Task Forces

3.8 coordinate the support of the WHO Member States of the European Regions for control programmes in countries with diphtheria epidemics and outbreaks, with particular emphasis on vaccines, antisera and antibiotics

3.9 ensure active continuous collaboration with governmental and non-governmental organizations providing support of the international community for control programmes to countries with diphtheria epidemics and outbreaks

3.10 initiate fund raising and help to mobilize support for diphtheria control programmes in epidemic countries

3.11 help to raise political awareness and to increase alertness in the rest of Europe

3.12 advise on matters of special importance for submission to the Regional Committee which could result in resolutions calling for action and support by the Member States

4. The method of work of the Task Force will be as follows:

4.1 Meetings of the Task Force will be held quarterly, usually at the WHO Regional Office for Europe, Copenhagen.

4.2 After each meeting a report will be prepared and distributed to the Regional Director. Conclusions and
recommendations for countries with diphtheria epidemics will be submitted to the respective national authorities.

4.3 To secure information on activities and ongoing work following the Task Force's recommendations, responsible
authorities and persons will be asked for reports.

4.4 The Task Force will be assisted in its work by the relevant units and divisions of the Regional Office and any consultants assisting on specific issues, as required.

5. Composition of the Task Force

The Task Force is chaired by Director, Programme Management (DPM)

Members are:

- Director, Disease Prevention and Quality of Care (DPC)
- Acting Director Expanded Programme on Immunization (EPI/HQ)
- Regional Adviser, Communicable Diseases, RA/CD (secretariat until Short Term Professional (STP) is recruited)
- STP Diphtheria Control (secretariat)
- STP Vaccine Supply
- Medical Officer Polio Eradication
- Chairman of the European Advisory Group on EPI
- Representatives of UNICEF and the EU.