

**WORLD HEALTH ORGANIZATION**  
Regional Office  
for the Eastern Mediterranean  
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Bureau régional de la Méditerranée orientale



مَنْظَرَةُ الصَّحَّةِ الْعَالَمِيَّةِ  
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لشَرْقِ الْبَحْرِ الْمَتَوَسِّطِ

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Technical Paper:

PREVENTION AND CONTROL OF BLINDNESS IN THE REGION

**Table 2. Blindness prevalence in four EMR countries, by age (percentage)**

Country	Age-group			
	0-14 yr	15-59 yr	>60 yr	All ages
Morocco	0.03	0.3	9.9	0.8
Pakistan	0.08	0.6	14.0	1.7
Saudi Arabia, Eastern Region	0.14	1.7	19.7	1.5
Tunisia	0.07	0.2	9.2	0.8

The prevalence of blindness increases with age. The highest prevalence is encountered above the age of 60 years (Table 2). In this age-group, blindness affects up to 19.7% of individuals. With increasing longevity, the prevalence of blindness is likely to rise further in coming years.

The data available also confirm that cataract is the leading cause of blindness in the EMR populations studied, being responsible for 38-72% of all cases. Other major causes of blindness are corneal diseases (including trachoma) and glaucoma. Further details on the causes of blindness are shown in Table 3. Owing to differences in socio-economic conditions, genetic factors and disease patterns in EMR countries, it is difficult to provide accurate estimates for the major causes of visual loss in the Region as a whole. It seems, however, that cataract, in general, is probably responsible for about 50% of blindness and that corneal diseases (including blindness due to trachoma) does not exceed 10% of the total. Glaucoma and other eye disorders, such as diabetic retinopathy and ageing-related macular degeneration, are most certainly increasing as a result of the demographic, socioeconomic and nutritional changes taking place in most Member States.

**Table 3. Causes of blindness in four EMR countries (percentage)**

Country	Lens/cataract	Corneal diseases, including trachoma	Glaucoma	Others
Morocco	54.6	10.4	14.3	20.7
Pakistan	66.7	12.6	4.0	16.7
Saudi Arabia	37.5	17.3	9.4	35.8
Tunisia	72.4	4.3	6.4	16.9

Data from the surveys recently conducted in Morocco and Tunisia provide interesting preliminary information on the availability of health care services in terms of cataract surgery, aphakic glasses, refraction spectacles and trichiasis surgery. For example, it is estimated that existing cataract surgery services cover less than 30% of actual needs and that aphakic glasses are available for only 40-60% of cases, while provision of refraction spectacles covers only 40%. Such findings indicate serious gaps in the provision of health services in relation to essential eye care requirements.

Table 4. Blindness and low vision: rough regional estimates, 1995

Country	Population 1995 ( '000)	Estimated prevalence (%)		Number ( '000)		Total
		Blindness	Low vision	Blindness	Low vision	
Afghanistan	20 141	1.7	5.1	342	1 027	1 370
Bahrain	564	0.7	2.1	4	12	16
Cyprus	742	0.7	2.1	5	16	21
Djibouti	577	1.0	3.0	6	17	23
Egypt	62 931	0.8	2.4	503	1 510	2 014
Iran, Islamic Republic of	67 283	0.8	2.4	538	1 615	2 153
Iraq	20 449	0.7	2.1	143	429	573
Jordan	5 439	0.7	2.1	38	114	152
Kuwait	1 547	0.7	2.1	11	32	43
Lebanon	3 009	0.8	2.4	24	72	96
Libyan Arab Jamahiriya	5 407	0.8	2.4	43	130	173
Morocco	27 028	0.8	2.4	216	649	865
Oman	2 163	1.0	3.0	22	65	87
Pakistan	140 497	1.7	5.1	2 388	7 165	9 554
Qatar	551	0.7	2.1	4	12	15
Saudi Arabia	17 880	1.5	4.5	268	805	1 073
Somalia	9 250	1.5	4.5	139	416	555
Sudan	28 098	1.5	4.5	421	1 264	1 686
Syrian Arab Republic	14 661	0.7	2.1	103	308	411
Tunisia	8 896	0.8	2.4	71	214	285
United Arab Emirates	1 904	0.7	2.1	13	40	53
Yemen, Republic of	14 501	1.5	4.5	218	653	870
All EMR Member States	453 518	1.2	3.7	5 520	16 565	22 086

Note: Population estimates for 1995 from The Sex and Age Distribution of the World Populations. The 1994 Revision. Department for Economic and Social Information and Policy Analysis, Population Division. UN, New York, ST/ESA/SER.A/144.  
Blindness defined according to WHO/TCD-10; low vision calculated by multiplying blindness rates by 3. Figures may not add up owing to rounding.

Assessment of the magnitude of the problem is also needed in countries where epidemiological surveys have not been performed. An attempt to provide an estimate of the magnitude of blindness and low vision in the EMR is shown in **Table 4**.

The estimates are based on the results of the standardized surveys conducted in Morocco, Pakistan, Saudi Arabia and Tunisia. In countries where data are not available, extrapolation from neighbouring populations or countries with similar socioeconomic and health conditions has been adopted. The blindness prevalence has been adjusted upwards, in the presence of known endemic trachoma (e.g. in Oman and Sudan), and downwards in the case of small populations in countries with particularly well-developed health care systems.

According to these estimates, there are in the Region over 5 million blind persons and 16 million with low vision. The present estimate of people with significant visual disability amounts to more than 21 million. Population growth and ageing are expected to increase the magnitude of visual loss to over 40 million by the year 2020 (**Tables 5 and 6**).

It should be clear, however, that there are several limitations to these estimates. The actual prevalence may differ considerably from the extrapolated figures. Even in countries where the estimated figure is based on available data, the prevalence of blindness and low vision may vary from one region to another in the same country and is not necessarily reflected by the result of a survey conducted in one site. This particularly applies to the results of the Saudi Arabian survey reported in this paper.

Additionally, the figures on blindness may not reflect the actual situation in 1995, as remarkable achievements have been made in strengthening eye care services and the availability of cataract surgery in Saudi Arabia since the survey was conducted. In fact, the 1990 data demonstrate a considerable reduction of blindness compared with 1984.

While recognizing the limitations of these estimates, they still provide a rough assessment of the magnitude of the problem and the implications on the required health care services. Since about 50% of all cases of blindness are a result of cataract, and assuming that 80% of cases of cataract are likely to benefit from surgery, it is calculated that there are, today, over 21 million cases requiring cataract surgery. If no major programmes are initiated to deal with the backlog, the number of people requiring cataract surgery will be more than double by the year 2020. **Table 7** also provides similar estimates on the number of cataract cases to be operated on for people with low vision in 1995 and 2020.

In conclusion, available data confirm the enormous magnitude of blindness and low vision in the EMR and illustrate the considerable proportion of preventable cases. The data also provide evidence to the lack of effective blindness prevention activities and highlight the inadequacy of health care services for those suffering from blindness and low vision.

Table 5. Regional population growth and aging, 1995-2020

Country	Population ('000)		Population Increase (%)	Population over 50 ('000)		Population increase (%)
	1995	2020		1995	2020	
Afghanistan	20 141	41 290	105	957	2 494	151
Bahrain	564	859	54	24	131	446
Cyprus	742	901	21	103	184	79
Djibouti	577	972	68	29	83	117
Egypt	62 931	92 015	46	4 078	9 746	139
Iran, Islamic Republic of	67 283	115 534	72	4 006	8 576	114
Iraq	20 449	38 974	90	947	2 560	170
Jordan	5 439	10 855	100	241	594	146
Kuwait	1 547	2 653	71	43	312	146
Lebanon	3 009	4 193	38	250	429	72
Libyan Arab Jamahiriya	5 407	11 418	112	238	678	185
Morocco	27 028	38 526	43	1 660	3 952	138
Oman	2 163	5 265	143	91	287	215
Pakistan	140 497	261 866	86	6 582	17 667	168
Qatar	551	779	41	17	171	906
Saudi Arabia	17 880	37 891	112	780	3 067	293
Somalia	9 250	18 905	104	395	861	118
Sudan	28 098	52 529	87	1 317	3 040	132
Syrian Arab Republic	14 661	30 359	107	639	1 485	132
Turisia	8 896	12 619	42	619	1 361	120
United Arab Emirates	1 904	2 846	49	63	580	821
Yemen, Republic of	14 501	29 912	106	556	1 106	99
All EMR Member States	453 518	811 151	79	23 635	59 274	151

Note: Population estimates for 1995 from *The Sex and Age Distribution of the World Populations. The 1994 Revision*. Department for Economic and Social Information and Policy Analysis, Population Division, UN, New York. ST/ESA/SER.A/44

**Table 6. Blindness: Regional Estimates, 2020**

	0-14 yr	15-59 yr	>60 yr	All ages
Population ('000)	269 313	482 564	59 274	811 151
Prevalence of blindness (%)	0.07	0.8	12.0	1.4
Number of blind ('000)	189	3 861	7 113	10 973

Note: In this table, present age-specific prevalence estimates are applied to projected population in year 2020; population estimates from *The Sex and Age Distribution of the World Populations. The 1994 Revision*. Department for Economic and Social Information and Policy Analysis, Population Division. UN, New York. ST/ESA/SER.A/144; blindness is based on the WHO/ICD-10 definition.

**Table 7. Number of cataract cases to be operated in 1995 and 2020 if no major programmes are implemented**

	1995		2020	
	Number with impaired vision ('000)	Cataract cases ('000)	Number with impaired vision ('000)	Cataract cases
Blind	5 400	2 160	10 973	4 390
Low vision	16 200	3 240	32 919	6 584
Total	21 600	5 400	43 892	10 974

Note: Global population growth taken into account (in thousands)

Assumptions:

For cases of blindness, it is assumed that:

- (a) 50% of blindness cases are a result of cataract; and
- (b) 80% of these cataracts may benefit from surgery.

For cases of low vision, it is assumed that:

- (a) 40% of low vision cases are a result of cataract; and
- (b) 50% of these cases will want to be operated.

### 3. STRATEGIES FOR THE PREVENTION OF BLINDNESS

#### 3.1 Eye care as an integral part of primary health care

Primary health care is defined as essential health care made accessible at a cost the country and community can afford, with methods that are practical, scientifically sound and socially acceptable. It is classically based on: equity; universal access to basic services, including primary and secondary medical care services; recognition of the multisectoral nature of health and disease determinants; community participation; and the promotion of health and well-being as a priority, together with prevention and control of diseases.

Primary eye care (PEC) addresses the issues of eye health within the overall framework of primary health care. The scope and level of delivery of essential eye care vary widely from one country to another, and from one programme to another. However, the principles, listed above, are as applicable at the tertiary level as at the community and primary levels of care.

To accomplish the goals of eye health and prevention of blindness, eye care, as part of PHC, must include: preventive, curative, and rehabilitative elements. The level of sophistication inherent in all these elements will depend on the resources available in terms of human resources, equipment and financial resources.

In the health care settings of many developing countries, essential eye care elements are delivered by community health workers whose role, in the past, has been unipurpose but is now more community multipurpose. In more developed health care systems, the primary eye care provider may be an ophthalmic assistant, a primary health care physician or even an ophthalmologist. Appropriate task-oriented training is critical to the efficient and effective functioning of these personnel.

In situations where the primary eye care provider is a community health worker, the best approach would be to integrate facets of eye care with the eight essential elements of primary health care. A community health worker trained in this way does not consider eye care as an added chore.

Table 8 indicates how this can be achieved in relation to the major blinding and vision-impairing conditions.

A review of the eye care component of PHC is needed to identify the strengths and weaknesses of the PHC/PEC component of a national programme, in order to establish or modify priorities and to make specific recommendations for future action.

**Table 8. Integrating eye care into primary health care**

Item	Water Sani- tation	Food & Nutri- tion	MCH/ Family Planning	EPI	Simple Treat- ment	Locally endemic diseases	Essential drugs	Health Educa- tion
Cataract		•		•	•			•
Trachoma	•		•		•	•	•	•
Xerophthalmia	•	•	•	•	•	•	•	•
Diabetic retinopathy		•			•		•	•
Glaucoma					•		•	•
Refractive errors			•		•		•	•
Corneal Infections	•	•		•	•		•	•

The constraints related to primary health care are relevant also to eye care delivery where integrated approaches are in place. As far as human resources for eye health at primary care level are concerned, inadequate number and ratios of personnel, inappropriate training of personnel, and lack of health resource planning are major constraints. Other constraints include inadequate teamwork and supervision, lack of continuing education, lack of job description, insufficient linkage with traditional practitioners such as traditional birth attendants, and low motivation of personnel.

Problems in the functioning of PHC/PEC include: inadequate remuneration/incentive, weak health system management (planning, monitoring, supervision, support) and problems with equipment, supplies and logistic support. Non-motivation/noninvolvement of communities and weak involvement of non-health sectors impede sustainability. Inadequate health promotion/prevention orientation, low utilization of services, and limited resources are other important shortcomings that have been identified.

There is a need for greater political will, commitment and action in relation to human resources for eye care. Increasing the number of PHC personnel trained in eye care, reorientation of training to improve the social content and methods of training, needs-based health and human resource planning, and in-service training and continuing education are to be emphasized.

In regard to the effective functioning of primary eye care, it is necessary to improve the working environment, and provide better incentives. Efficient health system management, including a better information system, and information sharing, with better logistic support, are also important to improve services.

There is relatively limited information available on the experience of integrated primary eye care from countries within the Region. However, when reviewing the achievements and constraints in relation to eye care as part of PHC, the following lessons learned from this experience should be mentioned:

- The need for proper support and feedback from the higher levels of health care, to keep interest and credibility in the local primary eye care scheme. Secondary health care services, particularly in relation to cataract surgery, should be further developed.
- The need for supervision and monitoring of the performance of the PHC strategy by the next higher level of personnel.
- The necessity to have a clear and simple record-keeping system on eye care as part of PHC; only the essential information should be requested.
- Task-oriented training should be the model for the eye care component of PHC; additional "briefing" on recent developments in ophthalmology or eye disease control may well be given, but on the understanding that no particular action is expected in that context.



- There is always a need for refresher courses for the PHC staff, and this is the case also for the eye care component.
- The rapid turnover of staff at the PHC level poses a problem in some countries; repeated efforts are needed for maintaining a cadre of well-trained workers.
- There is still a need for training material in primary eye care in national working languages and in view of the great diversity of working conditions. There is a particular need for good manuals in the major languages of the Eastern Mediterranean.

### **3.2 Strategies for the development of community eye health**

Community ophthalmology (or community eye health) is a population-oriented approach to eye health and eye disease, which has received increasing interest and development during the last 15 years. While conventional ophthalmic training and clinical practice has emphasized the role of the specialist in examining and treating the individual patient, community ophthalmology also considers the eye health problems and care of communities as a whole.

This approach has required the application of different skills and training to examine community needs and ways of meeting them. Apart from the recognition and study of eye diseases and disease processes affecting communities worldwide, community ophthalmology includes the study of specific measures which may be implemented to prevent eye disease in communities (preventive ophthalmology).

All those concerned with the eye health of communities can be trained in the principles of community ophthalmology. These include ophthalmologists, doctors (with or without ophthalmic experience), ophthalmic nurses, general nurses, ophthalmic medical assistants, cataract surgeons, managers of community eye health programmes, primary health care workers and medical students.

Areas of activity in community eye health programmes include population-based surveys, which will provide the most detailed and accurate information about community needs. Hospital and clinic-based studies give biased and, therefore less accurate indicators of eye health and disease in populations—but should not be ignored.

After assessing the eye care needs in a population, priority areas for intervention should be assigned and alternative strategies should be assessed. Specific programmes can then be designed for the prevention of blindness. The implementation of those programmes requires management skills, together with specialist knowledge and understanding of eye health and disease, and the measures needed for prevention and cure of disease.

The community ophthalmologist/community eye specialist, depending on training experience, should have the required knowledge and skills, be competent in the development of community eye health curricula and able to teach courses appropriate to the needs of particular eye care workers.

To equip the community ophthalmologist for the tasks listed previously, training should include basic epidemiology and biostatistics, the gathering of information, setting priorities, mobilizing personnel and resources, establishing national programmes, planning blindness surveys, and identifying suitable equipment and technology for each programme.

Training in community ophthalmology is needed for people who will be involved in the planning, monitoring, evaluation and management of prevention of blindness activities. The number of community ophthalmology specialists to be trained will vary from one country to another according to the particular needs of programmes, but the minimum requirement is to ensure that blindness prevention focal persons or programme coordinators at the central, provincial or district levels receive such training. Whenever possible, senior ophthalmologists who are involved in leading blindness prevention activities should be introduced to the basic principles and skills of community ophthalmology.

While appreciating the varied community needs in the Region, good communication, the interchange of information, collaboration in the development of training and educational materials, and sharing experiences, should enhance the prospects of eye health among communities in the Region.

### 3.3 Organization and management of eye health services

The issues that need to be considered include the content of the services, organization and management, the role of eye health care providers and community involvement.

Content of primary eye care. As an integral part of primary health care and in fulfilment of its essential principles, PEC must ensure access to health promotion, through information, education and communication, as well as protective and preventive interventions.

Clinical activities in relation to PEC include the following:

- The recognition and treatment of simple eye conditions
- The recognition and treatment or referral of more serious conditions
- The recognition and urgent referral of acute sight-threatening conditions

The levels of sophistication and competence with which such activities are carried out will depend on the state of development of the eye health services in general and the primary eye care infrastructure in particular.

Organization of services. As stated before, primary eye care delivery follows the organization of primary health care, where the peripheral and community services form the broad base of the primary eye care pyramid, with appropriate referral systems.

Community participation. Private voluntary organizations are important resources that can make valuable contributions to primary eye care. Community leadership should be promoted through identification of potential leaders,

providing orientation to guide their actions and establishing credibility in PEC within the community.

Training of eye health personnel. Training of various levels of personnel in the provision of primary eye care needs to be task-oriented. In-service training and continuing education are methods of non-formal training that could usefully supplement or replace formal training of some categories of personnel. Supervision and performance assessment provide the support that is often lacking in the case of remotely deployed health workers.

#### 4. WHO'S INITIATIVES

The Eastern Mediterranean Regional programme of the Prevention of Blindness was established in 1978. Long before that, however, several countries collaborated with EMRO in activities related to prevention of blindness. The setting up of the Regional Programme was associated with the Meeting of the Technical Committee on Prevention of Blindness, held in Alexandria, Egypt, in 1978, which produced an outline of a Regional Programme for the Prevention of Blindness. The main objectives of the Regional Programme are to assess the magnitude of the problem, and to promote the development of national prevention of blindness activities based on primary health care.

In 1978, the Twenty-eighth Session of the Regional Committee reviewed the outcome of the Meeting of the Technical Committee mentioned above and decided to request governments of the Region to assess the magnitude of blindness and to create a centre for the prevention of blindness in the Arabian Peninsula and requested the Regional Director to assist in the activities of the Technical Committee and to submit periodic reports on prevention of blindness to the Regional Committee.

During the last two decades, WHO supported important initiatives for blindness prevention in many countries of the Region. A Regional Meeting on Primary Eye Care was organized in Tunis, Tunisia, in 1985. This was followed by a Meeting of an Intercountry Working Group on Primary Eye Care held in Amman, Jordan in 1987. WHO has also provided support to country programmes by encouraging governments to adopt appropriate policies, by offering advisory services, by provision of technical guidelines and through training fellowships. In some countries, national programmes were formulated and progress was made in integrating eye care into the primary health care system.

In order to monitor progress and to evaluate achievements made at the Regional level, an Intercountry Meeting for Evaluating National Blindness Prevention Programmes was held by WHO in Cairo, Egypt, in 1993. Achievements and obstacles were reviewed. The achievements included:

- Reduction in the prevalence of eye disease morbidity and blindness in some countries
- Increase in coverage of primary eye care, but some times under-utilized services
- Many countries have national plans and some have national committees
- Some collaboration and involvement of NGOs, but only in few countries

- Some progress in the training of more ophthalmologists, as well as in the training of general physicians in PEC
- Improved facilities for eye health care at the tertiary level.

The constraints were:

- Insufficient political commitment to blindness prevention in many countries
- Inadequate information systems
- Inadequate commitment on the part of the ophthalmic profession, in particular to community ophthalmology
- Lack of multidisciplinary approach on the part of national committees in some countries
- Inadequate financial resources for programme implementation
- Insufficient primary eye care component in primary health care systems in some countries
- Maldistribution and underutilization of existing ophthalmic human resources
- Insufficient managerial skills, including the preparation of project proposals for resource mobilization
- Insufficient use of existing guidelines for evaluation
- Inadequate attention to the secondary level of eye health care; and
- Poor facilities for maintenance and repair for ophthalmological equipment

Recommendations were made to intensify future activities and to overcome various constraints. The recommendations emphasized the need to promote community ophthalmology, strengthen primary eye care services, intensify support to Member Countries in epidemiological data collection, and promote the development of training programmes for health care professionals at all levels.

As a follow-up of the recommendations, a Regional Advisory Panel on Prevention of Blindness was formed, and the first meeting of the Panel was convened in Rawalpindi, Pakistan, in March 1995. The major objective of this meeting was to identify approaches for strengthening national blindness prevention programmes. The recommendations made during this meeting are listed below.

##### **5. CONCLUSIONS AND RECOMMENDATIONS OF THE REGIONAL ADVISORY PANEL ON PREVENTION OF BLINDNESS**

Blindness and visual impairment continue to constitute a major public health problem in most Member States of the Eastern Mediterranean Region. It is estimated that there are over 20 million persons blind or visually impaired. By far the greatest part of blindness and visual impairment is avoidable, with cataract accounting for nearly half of all cases.

Although the progress made by the prevention of blindness programmes in the Region is appreciated, considerable constraints in human and financial resources continue to exist. Critical issues and major constraints were addressed during the first meeting of the Regional Advisory Panel on the

Prevention of Blindness, and the following conclusions and recommendations were made:

1. The need for awareness among health policy makers and the medical profession of the problem of avoidable blindness in Member States was reaffirmed and the political will necessary to institute and implement appropriate control measures was emphasized.

Despite competing demands for attention to other health problems and the scarcity of resources in many Member States, there is a need to recognize not only the socioeconomic implications of blindness but also the rapidly rising incidence of blindness and visual impairment as a result of the aging of Eastern Mediterranean Region populations.

Member States were urged to make a firm commitment to give this problem the priority it deserves in their national health agendas and to provide support to solve it.

2. The paucity of sound epidemiological information on blindness in the Region was noted with concern. Population-based blindness prevalence data are available in only four countries of the Region. Moreover, the wide disparity in socioeconomic and health service infrastructure development between countries of the Region does not permit for extrapolation.

Pertinent data are needed to assess the magnitude of the problem and the main causes of blindness and visual impairments and to estimate the need for eye-care services.

Member States that do not as yet have baseline data are therefore urged to initiate data collection activities using the WHO survey methodology and data management.

3. In order to accelerate and facilitate effective blindness prevention in all countries of the Region, ministries of health of countries not yet having established national committees for this purpose, are urged to establish them. A national coordinator for the prevention of blindness should also be appointed and made responsible to the ministry of health on behalf of the committee. The main task of the committee should be the development of a comprehensive national plan for the prevention of blindness, including issues such as human resource development, infrastructure for eye care, coordination of activities, and monitoring and evaluation of interventions.

4. The delivery of eye care as an integral part of primary health care (PHC) is a well-established strategy in the prevention of blindness programme. There is a pressing need to train health personnel in PHC, ensuring that they acquire essential knowledge and develop the necessary skills to deliver eye care effectively as part of PHC. Several countries are establishing training programmes in eye care for PHC workers. The nature and content of training of such personnel will depend on their previous qualifications and experience. However,

continuing education and monitoring of performances are needed in all cases as prerequisites for achieving the desired objectives.

A need was also identified for suitable guidelines for such training. Although the content of such training would vary widely, given the wide diversity in development between the countries of the Region and the level of training of PHC personnel, it was recommended that:

- (a) existing material such as the WHO Manual on Primary Eye Care be adapted and translated into the main languages of the Region in order to serve the majority of the countries of the Region;
- (b) a core manual of guidelines for trainers in eye care as an integral part of PHC be produced along with guidelines for evaluation of such training;
- (c) linkages be established with centres within and outside the Region to facilitate development, updating and sharing of training materials.

5. Each country has to determine its own structure of the health care system as far as eye care is concerned, according to local circumstances. This includes decisions on the type and level of health care personnel to be trained and the level at which ophthalmic specialist care and ophthalmic paramedical personnel would be based.

Auxiliary health personnel require training in the principles and practice of basic eye care. These paramedical staff will include a variety of personnel within the Region. Their appointments are generally to rural areas and district hospitals.

Secondary eye care infrastructure, with special emphasis on cataract surgery, needs to be strengthened to deal with this predominant cause of blindness and visual impairment and to serve as a referral level for primary eye care activities.

6. Community ophthalmology (community eye health) is a population-oriented approach to eye health and disease in communities. It includes the planning and implementation of measures to prevent eye disease in communities, with particular emphasis on the needs of vulnerable population groups. Training in community ophthalmology includes learning skills required for data collection and analysis, planning, management, monitoring and evaluation of blindness prevention programmes.

The members recommended that the concept and principles of community ophthalmology should be included in the curriculum of undergraduate and postgraduate teaching of ophthalmology.

The members also reiterated the need to train a cadre of community ophthalmology who would be indispensable to the development and management of national prevention of blindness programmes. One or more centres for such training should be established in the Region.

7. There is a growing network of nongovernmental organizations at both international and regional levels that provide valuable support to blindness prevention. In order to benefit more fully from the experience and community-based work of nongovernmental organizations, it is recommended that the countries of the Region develop mechanisms to facilitate collaboration and coordination of work with these organizations, encouraging their active participation in national committees for the prevention of blindness.
8. Limited resources have been identified as a major constraint to programme development in several countries. The mobilization of needed resources from intergovernmental, bilateral and multilateral agencies and from international nongovernmental organizations, should be actively pursued by the Member States.

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## **PREVENTION AND CONTROL OF BLINDNESS IN THE REGION**

### **Summary of Recommendations**

- Each Member State should assess the magnitude of the blindness problem in their country. The main causes of blindness and visual impairments should be determined and the need for eye-care services estimated. Member States that do not as yet have baseline data are therefore urged to initiate data collection activities using the WHO survey methodology and data management.
- Ministries of health of countries not yet having an established national committee for blindness prevention, are urged to establish such committees. A national coordinator for the prevention of blindness should be appointed and made responsible to the ministry of health on behalf of the committee.
- Ministries of health should promote the delivery of eye care as an integral part of primary health care (PHC). There is a pressing need to train health personnel in PHC, ensuring that they acquire essential knowledge and develop the necessary skills to deliver eye care effectively as part of PHC.
- Each country should determine its own structure for eye care within the health care system, according to local circumstances. This includes decisions on the type and level of health care personnel to be trained and the level at which ophthalmic specialist care and ophthalmic paramedical personnel would be based.
- Member States should introduce the concept and principles of community ophthalmology in the curriculum of undergraduate and postgraduate teaching of ophthalmology.
- In order to benefit more fully from the experience and community-based work of non-governmental organizations, it is recommended that the countries of the Region develop mechanisms to facilitate collaboration and coordination of work with these organizations, encouraging their active participation in national committees for the prevention of blindness.
- The mobilization of needed resources from intergovernmental, bilateral and multilateral agencies and from international, and nongovernmental organizations, should be pursued actively by the Member States.



- WHO is requested to support national blindness prevention programmes and to provide technical assistance to member countries in data collection, planning and evaluation of programmes and the preparation of model training material for health personnel. Resources at the Regional Office should be strengthened.

CONTENTS

	page
Executive Summary	
1. INTRODUCTION . . . . .	1
2. EPIDEMIOLOGICAL CONSIDERATIONS . . . . .	1
3. STRATEGIES FOR THE PREVENTION OF BLINDNESS . . . . .	7
3.1 Eye care as an integral part of primary health care . . . . .	7
3.2 Strategies for the development of community eye health . . . . .	10
3.3 Organization and management of eye health services . . . . .	11
4. WHO'S INITIATIVES . . . . .	12
5. CONCLUSIONS AND RECOMMENDATIONS OF THE REGIONAL ADVISORY PANEL ON PREVENTION OF BLINDNESS . . . . .	13

PREVENTION AND CONTROL OF BLINDNESS IN THE REGION  
(Agenda item 9b)

Executive Summary

Blindness, the consequence of various types of eye disorders, is a major public health concern in many Member States. Studies in countries where standardized data are available indicate that the prevalence of blindness ranges between 0.8% in Morocco and Tunisia to 1.7% in Pakistan. The total prevalence of blindness and low vision has been reported to range from 2.8% to 11.6%. The highest prevalence is encountered over the age of 60 years.

The data available also confirm that cataract is the leading cause of blindness in the EMR populations studied, being responsible for 38-72% of all cases. Other major causes of blindness are corneal diseases (including trachoma) and glaucoma. Glaucoma and other eye disorders, such as diabetic retinopathy and ageing-related macular degeneration, are certainly increasing as a result of the demographic, socio-economic and nutritional changes taking place in most Member States.

It is also estimated that existing cataract surgery services cover less than 30% of actual needs, and that aphakic glasses are available for only 40-60% of cases, while the provision of refraction spectacles covers only 40% of cases. Such findings indicate serious gaps in the provision of health services in relation to essential eye-care requirements.

During the last two decades, WHO has supported important initiatives for blindness prevention in many countries of the Region. WHO has also provided support to country programmes by encouraging governments to adopt appropriate policies, offering advisory services, providing technical guidelines and through training fellowships.

In order to monitor progress and evaluate achievements made at the regional level, an intercountry meeting was held by WHO in 1993, at which major achievements and obstacles in the prevention of blindness programmes were discussed.

As a follow-up, a Regional Advisory Panel was formed to overcome constraints and to identify approaches for strengthening national blindness prevention programmes. Critical issues and major constraints were addressed during the Panel's first meeting, and specific conclusions and recommendations were made.

The principal recommendations made were as follows:

1. Each Member State should assess the magnitude of the blindness problem in their country. The main causes of blindness and visual impairments should be determined and the need for eye-care services estimated. Member States that do not as yet have baseline data are therefore urged to initiate data collection activities using the WHO survey methodology and data management.

2. Ministries of health of countries not yet having established national committees for blindness prevention, are urged to establish such committees. A national coordinator for the prevention of blindness should be appointed and made responsible to the ministry of health on behalf of the committee.
3. Ministries of health should promote the delivery of eye care as an integral part of primary health care (PHC). There is a pressing need to train health personnel in PHC, ensuring that they acquire essential knowledge and develop the necessary skills to deliver eye care effectively as part of PHC.
4. Each country should determine its own structure for eye care within the health care system, according to local circumstances. This includes decisions on the type and level of health care personnel to be trained and the level at which ophthalmic specialist care and ophthalmic paramedical personnel would be based.
5. Member States should introduce the concept and principles of community ophthalmology in the curriculum of undergraduate and postgraduate teaching of ophthalmology.
6. In order to benefit more fully from the experience and community-based work of nongovernmental organizations, it is recommended that the countries of the Region develop mechanisms to facilitate collaboration and coordination of work with these organizations, encouraging their active participation in national committees for the prevention of blindness.
7. The mobilization of needed resources from intergovernmental, bilateral and multilateral agencies and from international, nongovernmental organizations, should be pursued actively by the Member States.

## 1. INTRODUCTION

Blindness, the consequence of various types of eye disorders, is a problem of major public health concern in many Member States. Despite the considerable achievements made over the last two decades, particularly in controlling trachoma, millions of people in this Region still suffer from blindness or low vision. The decline in communicable eye diseases, coupled with increasing longevity among the growing proportion of elderly, have changed the epidemiological patterns of blindness in recent decades. Cataract is now emerging as a leading cause of visual loss in many countries.

While the magnitude of the problem, and the various causes of blindness, vary from country to country and, in some cases, from region to region within the same country, the fact remains that at least one of the major causes of blindness is present in a considerable proportion in each country of the Eastern Mediterranean Region.

Blindness is an enormous burden to the health and economy of every society. Fortunately, however, most causes of blindness are either preventable or curable. Furthermore, appropriate preventive and curative measures can be implemented by good management of available inadequate resources and planned deployment of available skills.

Several countries of the Region have taken active steps in the prevention and control of blindness. Significant advances have been made. Available data indicate that blindness rates, notably as a result of causes such as trachoma, have been reduced. However, problems remain, and there are major obstacles that impede the implementation and progress of eye care programmes that seek to prevent blindness due to other causes.

In many Member States there is a general lack of established programmes and organized activities that address the adverse socioeconomic and public health impact of blindness and visual loss. Given these factors, it is important to review the present situation in the EMR, and to discuss prevention and control strategies that are relevant and appropriate to the Region. Based on this review and the discussion that would follow, the Regional Committee may consider adopting a resolution to reflect the need to strengthen efforts to prevent blindness and to promote the availability of effective health care to those affected.

## 2. EPIDEMIOLOGICAL CONSIDERATIONS

The number of the visually handicapped in the world has been estimated by WHO on several occasions; it ranged from 10-15 million in 1972, increased to 28 million in 1978, 31 million in 1984 and was estimated to be 35 million in 1990. Although these estimates are not very accurate, it is clear that the number of visually handicapped persons is increasing, mainly as a result of population growth and ageing.

Cataract is the leading cause of blindness worldwide, and is responsible for about 50% of all cases of visual loss. There is an increasing backlog of cataract cases for treatment in many developing countries. There are, however,

probably geographical variations in the incidence, and rates of cataract surgery are influenced by socioeconomic conditions and consumer demand.

Trachoma is still an important cause of blindness in parts of certain countries, particularly among underserved rural populations.

Vitamin A deficiency continues to be a leading cause of childhood blindness. There are probably 1.5 million blind children in the world; it is estimated that there are 500 000 new cases each year, 70% of which are a result of vitamin A deficiency, associated in many cases with the occurrence of measles.

Onchocerciasis is decreasing in importance as a cause of new cases of blindness. This is a result of the successful WHO-executed Onchocerciasis Control Programme (OCP) in West African countries, together with the availability of ivermectin for use in endemic countries.

Ocular trauma seems to be increasing in importance in many developing countries, with 30-50% of injuries that damage eyesight taking place at work. Road accidents also constitute a major problem in terms of visual loss caused by trauma.

Data on the epidemiology of blindness and visual impairment in the EMR are generally scarce. However, several WHO-supported surveys, using standardized methodologies, have been conducted in recent years. Countries where standardized data are now available include Morocco, Pakistan, Saudi Arabia and Tunisia. Based on these data, the prevalence of blindness ranges between 0.8% in Morocco and Tunisia and 1.7% in Pakistan. The prevalence of blindness and low vision has been reported to range from 2.8% to 11.6%. More details on the results of these surveys are shown in Table 1.

Table 1. Blindness and low vision: Prevalence in selected EMR countries (percentage)

Country	Blindness	Low vision	Bilateral visual disability	Year	Ref.
Morocco	0.8	2.3	3.1	1992	[1]
Pakistan	1.7	4.8	6.5	1994	[2]
Saudi Arabia, Eastern Region	1.5	10.1	11.6	1990	[3]
Tunisia	0.8	2.0	3.2	1993	[4]

Note: Blindness and low vision as defined in WHO ICD-10 and WHO/ICIDH

#### References

- [1] Chami-Khazraji Y., Akalay O., Négrel A.D. (1992). Prévalence et causes de la cécité et de la baisse de vision au Royaume du Maroc.
- [2] National Committee for Prevention of Blindness, Pakistan National Programme for the Prevention of Blindness, Ministry of Health, Special Education and Social Welfare, Islamabad, 1994.
- [3] Report from the Research Department. Survey of eye diseases and visual loss in the Eastern Province, King Khaled Eye Specialist Hospital, Riyadh, Saudi Arabia (1990).
- [4] Ayed S., Négrel A.D. et al. Prévalence et causes de la cécité en République tunisienne, Ministère de la Santé publique, Direction des Soins de Santé de base, Tunis (unpublished data, 1993).