



WHO PROGRAMME ADVISORY GROUP ON THE PREVENTION OF BLINDNESS

INDEXED

Report of the Third Meeting, New Delhi, India

9-13 February 1981

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## INTRODUCTION

The Third Annual Meeting of the WHO Programme Advisory Group on the Prevention of Blindness was held from 9 to 13 February at the World Health Organization's Regional Office for South-East Asia (SEARO) in New Delhi, India.

The meeting was opened and addressed by the Regional Director, Dr V.T.H. Gunaratne. Dr I.D. Ladnyi, Assistant Director-General, also addressed the group, and was followed by Dr A. Zahra, Director of the Division of Communicable Diseases, WHO Headquarters, Geneva.

Dr Carl Kupfer was elected Chairman; Dr R. Pararajasegaram, Vice-Chairman; Professor Barrie K. Jones, Rapporteur, and Dr Chandler R. Dawson, Co-Rapporteur. The List of Participants is attached (Annex I). The provisional draft agenda was followed, with minor modifications (Annex II).

Representatives of the following international and nongovernmental organizations concerned with prevention of blindness reviewed the activities of their respective organizations:

International Labour Organisation  
United Nations Children's Fund  
United Nations Development Programme

Helen Keller International Inc.  
International Agency for the Prevention of Blindness  
International Eye Foundation  
International Federation of Ophthalmological Societies  
International Union of Nutritional Sciences  
World Council for the Welfare of the Blind

## 1. REVIEW OF PROGRAMME ACTIVITIES

Because of the number and variety of prevention of blindness programmes, the activities within the WHO Regions were reviewed separately by a representative of each individual Regional Office.

1.1 Regional Office for Africa (AFRO)

The most significant event in relation to the prevention of blindness was the adoption of Resolution AFR/RC30/R18 by the Thirtieth Session of the Regional Committee for Africa. This resolution calls for an action programme for the prevention of blindness as an integral part of primary health care and for the extensive use of technical cooperation among developing countries (TCDC) in this respect.

The main constraint in the development of national blindness prevention programmes is the lack of reliable data on the prevalence and causes of blindness in many countries of the African region. Only 8 countries of a total of 46 have carried out prevalence surveys. The results indicate blindness rates in excess of 0.65%, and the major causes are trachoma, onchocerciasis, xerophthalmia, trauma and cataract. With the exception of Kenya, no country in the region is as yet operating an identifiable blindness prevention programme. Several countries are collaborating with WHO to combat blindness due to onchocerciasis in the Volta River Basin area. A trachoma survey was carried out in Ethiopia, and Vitamin A deficiency and xerophthalmia prevalence surveys were carried out in Benin, Ethiopia, Malawi, Mali, Upper Volta and Zambia, with a view to formulating national programmes. Two intercountry meetings were held in Mali and Malawi, to consider a strategy for blindness prevention, promotion of eye care as an integral part of primary health care and the possibilities of sharing expertise and training facilities within the context of TCDC. The plans for 1981 will include the organization of blindness prevalence surveys, training of auxiliary ophthalmic personnel and primary health care workers in eye care, improvement in the procurement of drugs for eye care and strengthening of collaboration with nongovernmental organizations.

It was emphasized by the Group that a Regional Advisory Committee and a full-time post for prevention of blindness were needed in AFRO. These two elements will be necessary to provide advisory services for activities in individual countries.

A critical issue in the African region is the lack of trained personnel at all levels of expertise. The establishment of sub-regional training centres should have the highest priority. Such centres would emphasize the training of ophthalmic assistants, who would have a broad range of responsibilities, and would establish a critical mass of persons committed to prevention of blindness in the region.

It was pointed out that many of the activities on prevention of blindness in the region were carried out through bilateral aid programmes and with the assistance of nongovernmental organizations, and an effort should be made to give information on all these activities.

### 1.2 Regional Office for the Americas (AMRO)

Although the prevention of blindness programme is not quite two years old, a Regional Advisory Committee met in 1980 and two workshops have been held. Future plans include a meeting of representatives of the Member States in May 1981, a second Regional Advisory Committee meeting in 1982 and the development of a programme for training and education, coordinated amongst the five WHO Collaborating Centres for the Prevention of Blindness in the region.

Although the AMRO prevention of blindness programme has placed emphasis on the development of bilateral research activities between the Latin American and Caribbean area and North American institutions, the support provided thus far by AMRO has been limited to travel funds for persons to visit the "sister" institutions to plan such activities. The prevention of blindness programme does not provide the support mechanisms for project proposals generated by these exchange visits. It is expected that such resources will be generated from extrabudgetary resources.

### 1.3 Regional Office for the Eastern Mediterranean (EMRO)

In the review of the programme for prevention of blindness in this region, the major causes of blindness were identified as trachoma, cataract and onchocerciasis (in Sudan).

National programmes and measures against trachoma, often with EMRO and UNICEF support, together with improvement of socioeconomic standards, have resulted in a progressive decline in the importance of infective causes of blindness in the last decade. Trachoma and other eye infections are no longer considered important causes of blindness in countries such as Bahrain, Cyprus, Israel, Lebanon, Kuwait and the United Arab Emirates. However, they are still thought to be one of the most important causes of blindness in other countries, notably Afghanistan, Democratic Yemen, Oman, Pakistan, Saudi Arabia and the Yemen Arab Republic.

In 1980, EMRO collaborated with a number of countries of the region in the preparation of outlines for prevention of blindness programmes, some of which would require further elaboration, and in the implementation of eye care projects and activities. These countries are Libya, Oman, Pakistan, Saudi Arabia, Sudan and Tunisia. These programmes are, to a large extent, built on previous and ongoing projects and activities for communicable eye disease control and expanded to include other major causes of blindness.

The EMRO budget for prevention of blindness is \$ 202 000 in 1980/81, and \$ 235 000 for 1982/83.

It was pointed out by the Group that this region had the elements to produce an effective effort on prevention of blindness. Leaders in the area are aware of the problem of blindness, the mechanisms for regional programmes are available and funds should be obtainable in the region. What is needed is effective support for the community-based preventive efforts rather than, or at least combined with, the creation of costly, sophisticated eye hospitals in countries where the prevalence of preventable blindness is high. This would result in a better utilization of funds allocated to prevention of blindness in some countries of the region.

Many of the prevention of blindness activities in this region have been directed at blindness caused by infection. Many of these began as trachoma control programmes, which have evolved smoothly into prevention of blindness programmes, with blindness surveys evolving from trachoma surveys, and mobile surgical units from mobile trichiasis surgery teams. This region may well develop an alternate model for mobile eye surgery units, different from the cataract camp model of the South-East Asian region. This possibility emphasizes the need for health services research in the field of eye care delivery.

It does not appear that the implementation of regional activities, such as the proposed Middle East Research Centre for Prevention of Blindness, has received high priority. At this time, however, emphasis should be on the development of prevention of blindness programmes within each country.

#### 1.4 Regional Office for Europe (EURO)

Changes in the pattern of blinding conditions in European Member States (from communicable eye diseases to chronic conditions and trauma of various origin) have necessitated a shift from a disease-oriented approach to comprehensive health planning and health services' research. Meetings on the "Economic Aspects of Eye Health Care" and on the "Use of Residual Vision by Visually Impaired Disabled Persons" are examples of this approach. The strengthening of regional action in this field should take place at three levels:

- (i) Ophthalmic Profession at the National and International Level  
Increased attention should be paid to research and training aspects of public health ophthalmology with emphasis on epidemiology and interdisciplinary health services' research projects.
- (ii) WHO Regional Office for Europe  
This office plays a coordinating and catalyst role in accordance with the guidance received from the WHO Regional Committee and in response to requests from Member States.
- (iii) There should also be cooperation with nongovernmental organizations' activities in this field.

The group noted the recommendation in the document PBL/AG/81.12(C) that the word "blindness" be applied only to persons having no perception of light in either eye. The semantic and operational reasons for this proposal were appreciated, but were considered to have little relevance to prevention of blindness programmes, particularly in developing countries. The group wished to reaffirm its support in the strongest terms for the continuing use of the WHO classification of categories of visual impairment as set out on page 25 of the document entitled "Methods of Assessment of Avoidable Blindness" (WHO Offset Publication No. 54) and in other WHO publications in which the term blindness applies to persons whose vision in the better eye falls in categories 3, 4 or 5.

It was felt that the European region with its large body of scientific, technical and material resources should be requested to encourage Member States to develop cooperative endeavours in training and research aimed at prevention of blindness in developing countries in this and in other regions.

#### 1.5 Regional Office for South-East Asia (SEARO)

The programme in the South-East Asian region is directed at the prevention and control of blindness with several approaches.

The policy basis, approaches and strategies, definition of objectives (immediate and medium-term), current status of programmes in individual countries, mobilization of resources and monitoring progress in implementation were based on World Health Assembly Resolution WHA 28.54. The Regional Committee subsequently adopted a resolution on prevention and control of blindness (SEA/RCM28/R10).

Following this, intercountry meetings, consultancy services, fellowships for training and national meetings have been used to extend technical collaboration with Member States to formulate national plans and to implement services at the peripheral, intermediate and central levels as an integral part of the existing health delivery system.

Programmes are in different stages of development in Bangladesh, Burma, India, Indonesia, Nepal, Sri Lanka and Thailand. In Mongolia, eye health care is well integrated with primary health care. In DPR Korea, consultancy services will be provided to promote specialized ophthalmic services. In the Maldives, since the population is dispersed throughout the many islands, the strategy being promoted is the strengthening of eye care facilities in the capital, Malè, and the transport of patients to this place for treatment.

Resources for the programme are being mobilized from the community, government, bilateral and international and nongovernmental organizations.

A regional monitoring system is being developed and programme implementation at the national level is supported by timely and appropriate technical collaboration from the Regional Office.

UNICEF and nongovernmental organizations are actively involved and make significant contributions towards surveys and prevention of nutritional blindness, and the relief of cataract in the region.

The Group recognized that the South-East Asian Region has the largest number and diversity of programmes. SEARO coordinates the activities of consultants in each country by briefing them before they take up their duties, and by establishing the terms of reference for these consultant visits. The Regional Office also provides continuity through their Programme Advisory Group.

#### 1.6 Regional Office for the Western Pacific (WPRO)

The integrated programme on prevention of blindness is still in the preliminary phase in most countries of the region, because of the diversity of the causes of blindness from one country to another. National programmes based on a multidisciplinary approach and primary health care involvement will, therefore, be developed. There are several developed countries in the Region which can serve as a source of potential for consultation, manpower development and research, and for the evaluation of prevention of blindness programmes in other countries.

Assessment of the causes of blindness in various countries is a necessity in order to provide data for planning and evaluation. Furthermore, the data will be needed to assess the magnitude of the problem of blindness and to pinpoint priorities in several countries which have been unable to define the priority which should be given to blindness in health services' development as compared to other public health problems.

The Western Pacific region is fortunate in having extrabudgetary funds available for the WHO Prevention of Blindness Programme from the Japan Shipbuilding Industry Foundation (JSIF). A list and timetable of activities for 1981-1983 have been prepared and will be reviewed by a consultant to be recruited for the Regional Office expressly for this purpose. The priority areas for implementation of the regional prevention of blindness programme will be:

- (1) formulation of national programmes;
- (2) training programmes at all levels;
- (3) selection of pilot regions for demonstration programmes;
- (4) health education.

This region is diversified and, in some parts, public health administrators still regard prevention of blindness as a low priority health problem. It was hoped that the activities of the programme and its consultants would generate concrete data on blindness that would be convincing to the governments. Furthermore, it was noted that collaboration on a multidisciplinary basis, which WHO should promote and coordinate, will be needed in the region.

The participation of a representative from the People's Republic of China was greatly welcomed, and the Group noted with appreciation the request for closer collaboration with the Regional Office in the development of activities for the prevention of blindness in China.

## 1.7 Interregional Programme

### 1.7.1 General activities

The main activities of the programme at the interregional level have included dissemination of information, advisory services, participation in several meetings during 1980, as well as the convening of two Task Forces, on Economic Implications of Blindness Prevention and on Primary Eye Care.

The International Year of Disabled Persons (IYDP) is being given great attention at the global and regional levels.

The Headquarters staff of the Programme was increased from 1 April 1980 to include one ophthalmologist and one secretary, following the implementation of a contract between the National Eye Institute/National Institutes of Health, USA, and WHO to strengthen the Programme for the Prevention of Blindness. This contract allows for field research, and the preliminary results of a survey carried out in this context on loss of vision in northern Mali were reported, and showed a high incidence of cataract at a relatively young age in that population. A plan for similar surveys to be undertaken shortly in the Republic of Togo was presented.

These studies and the initiative they represent, both in their execution and in their extrabudgetary support, were warmly endorsed by the Group.

### 1.7.2 Data on blindness

This well-prepared report was derived from sources whose data varied widely in quality. In particular, blindness rates derived from census data may be artificially low and such data should not be used in establishing priorities.

The report on "Data on Blindness" constitutes one of the principal activities of the Data Bank, which has been set up in the Programme for the Prevention of Blindness (PBL) at WHO/HQ, Geneva, as an open-ended country file for the collection, analysis, synthesis, storage, retrieval and dissemination of data on blindness. It is believed to be a fairly comprehensive compilation on the prevalence and causes of blindness throughout the world.

The list of references by country on the prevalence and causes of blindness is in preparation, and will be available on request from the Programme for the Prevention of Blindness, WHO/HQ, Geneva, together with any copy of the full text referred to in the list.

Current trends in world population and increased life expectancy will result in a large increase in the number of persons blind from age-related conditions. This number may double by the year 2000, unless far more extensive programmes for the prevention and treatment of blindness are implemented.

Trachoma, xerophthalmia and onchocerciasis were long ago recognized as the main causes of blindness. Cataract, trauma, glaucoma, retinal diseases and congenital defects are increasingly becoming causes of loss or impairment of sight.

About 80% of the blind live in developing countries, where blinding diseases are endemic and where there is a lack of medical services. The origins and extent of avoidable blindness differ widely from area to area.

The Group stressed the importance of periodic compilation of new data and recommended that the data be graded for quality. This would allow for new and more accurate information, with emphasis on data collected from community-based surveys.

## 2. TASK FORCE REPORT ON ECONOMIC IMPLICATIONS OF BLINDNESS PREVENTION

This report was presented to and approved by the Group. It was emphasized that this report dealt with the macro-economics of eye care and not with its micro-economics. It was pointed out that it would be helpful if the report provided data to support the assumptions and statements made. The collaboration of the World Bank should be requested in bringing this report to the attention of national planning commissions.

## 3. TASK FORCE REPORT ON PRIMARY EYE CARE

The Group appreciated the value of this report, but concern was expressed that primary eye care, as outlined, could not always be included in the work of ordinary village health workers. The report presented should, therefore, serve rather as a guide for the implementation of eye care at the primary level, with due adaptation to locally feasible conditions. The report was endorsed with minor modifications.

## 4. ACTIVITIES OF THE COLLABORATING CENTRES FOR THE PREVENTION OF BLINDNESS

The Group received reports on the activities of 9 of the 10 WHO Collaborating Centres for the Prevention of Blindness, namely:

### American Region

International Center for Epidemiologic and Preventive Ophthalmology, The Wilmer Institute, Baltimore, Maryland, USA

National Eye Institute, National Institutes of Health, Bethesda, Maryland, USA

Eye & Ear Hospital Dr Rodolfo Robles V, Guatemala, Guatemala, Central America

Hospital Santo Toribio de Mogrovejo, Lima, Peru

Francis I. Proctor Foundation for Research in Ophthalmology, University of California, San Francisco, California, USA

### European Region

Department of Preventive Ophthalmology, Institute of Ophthalmology, London, United Kingdom

Department of Viral and Allergic Eye Diseases, Helmholtz Research Institute of Ophthalmology, Moscow, USSR

### South-East Asian Region

Dr Rajendra Prasad Centre for Ophthalmic Sciences, New Delhi, India

### Western Pacific Region

Department of Ophthalmology, Juntendo University School of Medicine, Tokyo, Japan

These Collaborating Centres are in varying stages of development and differ in their interests and activities. They should be judged in terms of the contribution they make to the operational needs of national programmes on prevention of blindness and to the general objectives of the WHO Programme. Their activities fall into three main categories:

#### 4.1 Initiation, Facilitation and Conduct of Research

The Collaborating Centres should continue to give priority to problem-oriented research, aimed at identifying and obviating obstacles to the prevention of blindness. This may imply a need for epidemiological and experimental studies, as well as clinical trials, to provide

improved techniques of therapeutic and preventive intervention. They should also give priority to field evaluation of various alternative procedures or strategies for prevention or relief of blindness, and for eye health services' research.

#### 4.2 Training and Manpower Development

The group discussed the proposals of the Baltimore and London WHO Collaborating Centres to provide 9- to 12-month courses in subjects relevant to the prevention of blindness through the application of public health, epidemiological, managerial, ophthalmological and other techniques. The courses will focus on the practical skills required for programme design and implementation in response to major needs and conditions in developing countries. It was noted that a similar course is provided in New Delhi.

Other courses offered in London include a 2- to 3-month course for medical graduates in the above subjects designed to complement a basic training in clinical ophthalmology in a developing country or elsewhere.

Several centres are providing short courses on primary eye care for auxiliary health personnel.

These training activities and plans were endorsed by the Group and stress was laid on the importance of developing shared courses linking various national or Collaborating Centres that include practical exposure to prevention of blindness programmes. Emphasis should be given to the development of training courses close to the areas where manpower is required, and to the provision of training rather than the enlargement of institutions.

#### 4.3 Outreach from WHO to National Institutions. The Initiation of and Cooperation in National Programmes for Prevention of Blindness in Developing Countries

Through their functional linkages with academic, service and field activities in various countries, the Collaborating Centres can provide a rapidly effective linkage between WHO and the various national centres, as well as governmental and nongovernmental organizations, appropriate for the initiation or strengthening of national prevention of blindness programmes.

These linkages may relate to operational research, training and implementation of programmes, in addition to the exchange of information.

The ability to respond to these various requests is dependent on the availability of support. This emphasizes the need for close relations with various funding agencies.

The Group endorsed these activities and it was considered that endeavours should be made to ensure further development. The possible availability of increased funding for this purpose should be explored.

#### 5. RESEARCH PRIORITIES IN THE PREVENTION OF BLINDNESS PROGRAMME

The PBL programme is a problem oriented programme, aiming at the integration of eye care delivery within primary health care systems and the essential support levels. Operational research of a multidisciplinary nature is needed in this context, in order to improve existing eye health services, as well as technology and scientific understanding. The objective of eye health services' research programmes is to increase the coverage and quality of eye care to populations in need of such services. Research in this field should include aspects such as studies on eye health services' systems and their utilization, planning and evaluation of eye care delivery at various levels and educational aspects of manpower development and utilization.

It was pointed out that ongoing operational research has had an enormous impact on disease control programmes, notably the smallpox eradication programme. Because of the potential for improving programmes, it was felt that the Group should review present research priorities relating to practical field-oriented activities in the prevention of blindness.

It was particularly important to identify those areas where a research breakthrough could produce substantial improvements in eye care delivery or blindness prevention.

Research priorities on the following conditions were discussed in detail: cataract, nutritional blindness, blinding infections, glaucoma and ocular trauma (see Annex III).

## 6. RESOURCES MOBILIZATION

The agenda item was introduced under the headings of WHO's approaches to (1) Programme Formulation; (2) Programme Management, and (3) Programme Support/Resources.

### 6.1 Programme Formulation

It was indicated that the overall role of the Programme Advisory Group is to advise the Director-General and, through him, all Member States with regard to the priorities of the programme, on policy and broad strategies and approaches to be evolved for the prevention of blindness, on coordination with other activities of WHO and on monitoring and evaluation of programme progress. Much had been done in this direction by the first two meetings of the Programme Advisory Group. This Third Meeting had highlighted the urgent need to develop more sharply guidelines on the integrated strategic approaches to be followed in respect of each of the six priority areas of avoidable blindness. These guidelines should give a clear indication of the known state of the art, with the alternative approaches for the best utilization of available and appropriate technology, and with cost levels in the context of primary health care. The guidelines would be used by Member States for the implementation of the two components of the programme, namely, services delivery and research towards:-

- (i) formulation of plans of operation for prevention of blindness as part of ongoing activities in primary health care;
- (ii) training of planners, managers and trainers;
- (iii) documentation/information; and
- (iv) epidemiological and operational research, which needs to be formulated in support of the operational needs of the programme.

### 6.2 Programme Management

The present management in operation in WHO was then explained. The small core group in PBL at Headquarters and the Regional Offices should not be seen in isolation, since two of the primary functions of the core group are to mobilize the services of the required interdisciplinary interplay throughout the available expertise in WHO in other programmes (e.g. Nutrition, Diarrhoeal Diseases Control, Expanded Programme on Immunization, Occupational Health), and also to continue strengthening the role and functions of the 10 WHO Collaborating Centres for the Prevention of Blindness and the membership of the Expert Panel to give further support to the agreed strategy approaches. From such manpower resources, small working groups can be organized to develop the guidelines on strategic approaches for avoidable blindness, referred to above, in order to complete a plan of action for the programme.

At the Regional Office level, the PBL Adviser was similarly supported by regional and intercountry interdisciplinary groups for planning and monitoring of the services' delivery and research activities. A major aim was the strengthening of national centres and institutions, and hence of manpower resources.

### 6.3 Programme Support/Resources

The mechanism in WHO for mobilization of financial resources in support of the PBL programme was also explained. The utilization of WHO Regular Budget funds was primarily to help plan and formulate a good and realistic programme, which would then attract larger

extrabudgetary sources of funds. Extrabudgetary resources come from voluntary contributions to the WHO Voluntary Fund for Health Promotion, and from arrangements for secondment of experts on a non-reimbursable basis. The Director-General had recently established a Health Resources Group, devoted to the coordination of bilateral funds directed primarily to priority activities in primary health care as part of the "Strategies for Health for All by the Year 2000".

One of the conspicuous achievements of this programme has been the stimulus which has been given to the mobilization of national, bilateral and nongovernmental resources.

In more than thirty developing countries, governments have allocated significant funds to the support of national programmes. During the past four years, there has been at least a five-fold increase in the amount of bilateral government aid for prevention of blindness activities. National and international nongovernmental organizations are now devoting an annual sum in the region of \$17 million to work for the prevention of blindness in developing countries.

The Group welcomed these advances most cordially, but regretted that, apart from the international resources mobilized from a variety of sources to the Voluntary Fund for Health Promotion, there has not yet been a corresponding advance in multilateral support. In the absence of such support, and despite increased appropriations from the WHO Regular Budget, the Programme inevitably lacks essential staff resources and facilities both at Geneva Headquarters and in the Regional Offices. During the next three years at least, extrabudgetary resources are most urgently required to strengthen the central core (an estimated addition in the region of \$200 000 per annum) and to provide in each region at least one full-time specialist officer and the services of an Advisory Group.

#### 7. MANUALS AND TRAINING AIDS IN EYE CARE

The Group recognized the importance of elaborating training aids in eye care for various levels of health personnel, in order to complement existing manuals and other aids in this field. It was felt that action should be taken to produce manuals with series of good illustrations at the following levels :

- (a) Primary Eye Care Workers;
- (b) Ophthalmic Assistants; and
- (c) Specialized medical personnel, for training in specific ocular disorders.

The possible sources of good illustrations, mainly colour slides, and systems for the production and dissemination of such series of illustrations, were considered, and the need for collaborative efforts for wide distribution was underlined.

The need for rapid action as outlined was stressed by the Group.

#### 8. DATE AND PLACE OF NEXT MEETING

The Group Members expressed the wish that the 1982 meeting of the Programme Advisory Group be held in Geneva, particularly in view of the facilities needed to invite representatives of potential donor agencies.

The meeting should take place during February or March 1982, and the final date will be communicated to the Group Members in due course.

#### CONCLUSIONS AND RECOMMENDATIONS

1. The Group noted with approval the increasing activities in the PBL programme at the central and regional levels, necessitating a strengthened managerial structure for the programme. The Group therefore strongly recommended that increased staffing be made available to the programme at the Headquarters and Regional Office levels.

2. The Group recommended that a more comprehensive plan of action be prepared, outlining the various appropriate strategic approaches to be related to the objective of prevention of blindness, and that special efforts be made to integrate these into all ongoing primary health care activities.

3. It was felt that the establishment of Regional Advisers and Regional Advisory Groups, as previously recommended by the Group, was of the utmost importance, and should be implemented in all Regions.

4. Furthermore, the Group stressed the necessity of strengthening the collaboration with other WHO programmes related to the prevention of blindness.

5. The Group felt that there was a need for regional exchange and dissemination of technical information on prevention of blindness. The newsletter format is particularly effective and could be produced in several languages.

6. The Group recommended that all means of increasing the dissemination of information about the PBL programme be explored and utilized to the fullest possible extent, particularly in view of the International Year of Disabled Persons (IYDP).

7. The Group stressed the important role of the WHO Collaborating Centres for the Prevention of Blindness in promoting training, manpower development and research related to priorities in blindness prevention. It was recommended that these Collaborating Centres should strengthen their cooperation in national programmes for the prevention of blindness, and play an active role in identifying and stimulating appropriate national resources for training and research in this field.

8. The need for research on various aspects of eye health services, in particular aspects related to the control and treatment of identified major causes of blindness, was stressed by the Group. Augmentation of work in this field was strongly recommended, as outlined in Annex III of this report.

9. The Group noted the progress made in defining the amount of eye care that can be delivered within the framework of primary health care. However, the need for manuals and other training aids in eye care for various categories of health personnel was stressed, and the preparation of such training aids was recommended by the Group.

10. It was recommended that an opportunity should be taken to invite potential donor agencies to study the needs and priorities of the programme and to appreciate the cost effectiveness of the prevention of blindness activities which are now being promoted and which depend essentially on increasing resources, particularly at the multilateral level.

11. The Group recommended that national organizations and committees of nongovernmental organizations, active in the health field, should bring the attention of their governments to the efficacy of allocating, within those programmes, increased resources, both bilaterally and multilaterally, in support of the prevention of blindness.

12. The Group recommended that governmental and nongovernmental organizations, multilateral and bilateral donors and sister agencies, which are already giving support, should be urged to coordinate their activities with the global and regional priorities of WHO's programme and, wherever possible, to make that collaboration more effective by channelling resources through the WHO Voluntary Fund for Health Promotion. In particular, it was recommended that, in each region to which they have a special commitment, nongovernmental organizations should examine the desirability of financing the appointment of Regional Advisers in PBL or appropriate project staff, or the secondment to the central core, Regional Offices or to national projects, staff with appropriate qualifications to serve as short-term consultants or advisers.

13. WHO should give all appropriate support to the effort of the International Agency for the Prevention of Blindness and other agencies in this field in fund-raising activities for the financing of prevention of blindness activities.

14. The Group stressed the importance of eye health education in the prevention of blindness and the role of community education in eye health care. It recommended the production of suitable educational material through multidisciplinary approaches for the purpose, through governmental agencies and encouragement to voluntary agencies.

15. The Group felt that WHO Regional Offices covering countries with well-developed technical, scientific and material resources should be encouraged to continue and increase their important contribution to work on prevention of blindness in less developed regions.

PROVISIONAL DRAFT AGENDA

Opening of the meeting and election of officers

1. Review of Programme Activities during 1980
2. Economic Implications of Blindness: Review of the Draft Report of the Task Force
3. Primary Eye Care: Review of the Draft Report of the Task Force
4. Activities of the WHO Collaborating Centres for the Prevention of Blindness
5. Research Priorities in the Prevention of Blindness Programme
6. Resources Mobilization
7. Manuals and Training Aids in Eye Care
8. Date and Place of Next Meeting

Conclusions and Recommendations

Closure of the meeting

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RESEARCH PRIORITIES RELATED TO THE CONTROL OF  
MAJOR CAUSES OF BLINDNESS

## 1. CATARACT

This important subject has been relatively ignored as a topic for research by PBL, although it is a major cause of blindness and visual disability in both developing and industrialized countries. The broad areas of research activity on cataract are :

- (a) Basic research on the biochemistry of the lens and of cataract formation.
- (b) Epidemiologic studies to determine the importance of risk factors.
- (c) Other clinical and therapeutic studies.
- (d) Multi-disciplinary operations research on all aspects of cataract relief services particularly in developing countries.

The increased activities in the epidemiological study of cataract were noted. The Group stressed the need to augment further and to coordinate the work in the above-mentioned fields.

## 2. NUTRITIONAL BLINDNESS

Nutritional blindness (xerophthalmia, keratomalacia) is a reflection of the many unfavourable behavioural and environmental factors and health practices that assail children in impoverished communities of the developing world (poor maternal nutrition; bottle feeding; delayed introduction of the use of weaning foods rich in Vitamin A; protein-energy malnutrition; recurrent diarrhoea). It can be prevented or treated by improving the diet and by increasing Vitamin A intake and controlling contributory factors impairing absorption and utilization of the vitamin. Research should be directed towards the identification of these associated factors and constraints to Vitamin A intake, and to the development of mechanisms for dealing with them, as far as possible through established health programmes, i.e. primary health care, diarrhoeal disease control and expanded immunization activities.

2.1 Ensuring adequate Intake of Vitamin A

Data are needed on the following :

- (a) The minimum daily Vitamin A requirements of pre-school age children in typically impoverished rural communities, and the equivalent requirements in terms of pro-Vitamin A carotenoids present in the vegetable dietary sources available.
- (b) The reasons why affected children do not consume adequate quantities of these sources; the mechanisms by which their consumption can be increased (e.g. nutrition education), and their cost and effectiveness.
- (c) The potential value and cost of fortifying commonly consumed, centrally processed items with Vitamin A, the impact of periodic distribution of large doses of Vitamin A or alternative supplementation programmes (e.g. adding Vitamin A to oral rehydration fluid) on nutritional blindness, improved methods for identifying children with mild Vitamin A deficiency and xerophthalmia (e.g. night blindness screening), and the value of targeting intervention to high risk groups.

2.2 Reducing or Eliminating Contributory Factors

Data are needed on the role and significance of contributory diseases (e.g. diarrhoea, worm infestation, respiratory tract infection, measles, protein malnutrition); the cost and practicability of their control, and the impact this would have on the problem.

### 3. BLINDING INFECTIONS

#### 3.1 Trachoma

Trachoma continues to be a major public health problem. The control of blinding trachoma has three components: mass chemotherapy, especially to children with the active infectious phase; surgical correction of intumed eyelids, and community-based environmental and behavioural interventions through health education. Recent simplifications in assessment techniques now make it possible to identify more easily communities with blinding trachoma and to measure the effect of new methods of health intervention in a relatively short period of time.

3.1.1 Although the chemotherapy of trachoma has previously been satisfactory, the rationale for treatment has shifted significantly with the discovery that Chlamydia trachomatis infections acquired at birth are a cause of neonatal pneumonia. The major research priorities in active infectious childhood trachoma are :

- (a) the determination of the extent of extraocular infection with C. trachomatis and identification of the disease spectrum of this infection in trachoma endemic areas;
- (b) the development and field-testing of simple, inexpensive diagnostic methods to detect ocular and extraocular chlamydial infection;
- (c) the development and field-testing of simpler, more effective, practical chemotherapeutics, particularly long-acting systemic antibiotics such as doxycycline and the sustained release of topically applied drugs.

3.1.2 New developments in the purification and production of chlamydial antigens now make it possible to consider the development of trachoma vaccine. Extensive testing in animal models will be necessary before such vaccines could be considered for health care.

3.1.3 Corrective lid surgery for trachomatous trichiasis/entropion has an immediate effect in preserving vision and such surgery is often done by auxiliary personnel. The operational research needed includes :

- (a) the development and field-testing of effective guidelines for the detection of trichiasis and entropion by health workers;
- (b) the field-testing of systems for the delivery of eyelid surgery and of a set of simple surgical procedures to deal with the various degrees of trichiasis/entropion to be used by auxiliary personnel, and others;

3.1.4 The effect of community-based environmental and behavioural interventions needs further evaluation.

#### 3.2 Microbial and Septic Corneal Ulcerations

3.2.1 Corneal ulceration, wholly or partially caused by microbial agents, is often the final cause, producing blindness in developing countries and in rapidly industrializing urban areas. There is an urgent need to develop a simple, effective antimicrobial treatment for these corneal ulcers, many of which follow minor trauma. This treatment should make use of locally available drugs and should be applicable by any health worker.

3.2.2 There is an increasing problem with bacterial, fungal and viral corneal ulcers, considered to be enhanced by the topical application of corticosteroids, which are easily available or indiscriminately dispensed. Thus, there is an urgent need to identify the extent of this problem and to develop alternative practicable methods to limit the distribution of topical corticosteroids.

### 3.3 Systemic Infections resulting in Blindness

#### 3.3.1 Onchocerciasis

Research on control operations for onchocerciasis are already extensively supported by two programmes in, or related to, WHO. It is, therefore, necessary to identify areas requiring research for prevention of blindness that are not included in the Onchocerciasis Control Programme (OCP), or the Special Programme for Research and Training in Tropical Diseases (TDR).

Following initial surveys, OCP has achieved and maintained a high level of control of the Simulium fly vector of onchocerciasis in a huge savanna area in 7 countries in West Africa. However, there is still no safe and effective treatment for those already heavily infected.

TDR is supporting extensive research on onchocerciasis which includes immunological studies of the host-parasite relationship aimed at improved methods of diagnosis for field-studies, elucidation of the pathogenesis of the disease and its therapy-induced complications, and exploration of the possibilities of control by vaccination. TDR also supports an extensive drug screening programme in collaboration with the pharmaceutical industry and academic institutions for the development of new drugs to kill the adult worms.

However, there is an important gap not covered by OCP or by TDR. This concerns the need to define the benefits to be obtained from a broad approach to the control of avoidable blindness in Onchocerca afflicted communities. Projects to explore the feasibility and to measure the impact of this type of eye health service development, within the context of primary health care, in areas of severe onchocerciasis should be encouraged by the Programme for the Prevention of Blindness, in cooperation with other relevant programmes and agencies.

#### 3.3.2 Measles

This disease has long been known as a cause of blindness, but the mechanism by which this occurs is still poorly understood. Thus, there is a need to determine the covariant conditions leading to corneal blindness in children with measles keratitis, including nutritional status, concomitant viral (herpes simplex virus) and bacterial infections.

The control of blindness due to measles may rest on the effective application of measles vaccine. Evidence indicating measles as an important cause of blindness would provide a strong incentive for a widespread measles vaccination programme.

#### 3.3.3 Leprosy

The occurrence of ocular involvement is well known in leprosy. The contribution of leprosy to overall blindness rates is not known and should be determined in areas with leprosy. It was pointed out that WHO has an active programme in leprosy, and information from that programme will be made available to the PBL programme.

### 4. GLAUCOMA

Visual impairment caused by glaucoma is preventable. Simplified epidemiological surveys are needed to assess the importance of glaucoma as a cause of blindness.

Glaucoma related to intumescent cataract is important in countries where a backlog of cataract exists.

There was a general consensus that there is still insufficient adequate screening technology to identify individuals at risk of open-angle glaucoma blindness, or to treat them at the rural/village level. Simple vision testing will, however, identify individuals who have lost sight in one eye from closed-angle glaucoma, and who are, therefore, in urgent need of prophylactic surgery, which is highly effective in preventing blindness in the second eye.

## 5. OCULAR TRAUMA

As a cause of visual disability, injury to the eye figures prominently in the list of causes of blindness in many parts of the world. Visual impairment and blindness may result from the trauma per se, from damage to one or other part of the globe, or may be the outcome of secondary infection.

Whilst eye injuries in the developed countries commonly result from industrial, road-traffic and home accidents, most eye injuries in the developing countries, where up to 90% of the population are rural-based, occur in the course of agricultural or stone-cracking pursuits. These agricultural injuries often result in disabling eye lesions from secondary infection, due to delayed adequate treatment, other interfering eye diseases and sometimes self-medication, including topical steroids. Increasing industrialization in some developing countries is likely to add to the number of ocular injuries in these areas.

Research is needed to ascertain the microbiological pattern of infection following trivial agricultural trauma. Studies should also be undertaken, including field-testing, to identify cheap and effective agents that could be used by frontline workers to prevent the infective complication of trauma.

The PBL Programme could promote legislation in the following fields :

- (a) To instigate a ban on the use of fireworks, as has been implemented in some countries.
- (b) To introduce and ensure the use of protective eye devices where ocular hazards exist in various industries.
- (c) To promote health education, and possibly legislation, concerning ocular trauma associated with sports, certain cultural customs and employment.
- (d) To promote research and development for the design and production of low-cost protective eye devices for use in agricultural, industrial and other sectors. Such devices should be appropriate to the environmental conditions under which these workers have to function for long periods of time.

This could be carried out in collaboration with the Occupational Health Unit of the World Health Organization, and with other UN bodies, such as the ILO.

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