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REPORT OF A TASK FORCE ON EVALUATION MECHANISMS FOR PROGRAMMES FOR THE PREVENTION OF BLINDNESS

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TABLE OF CONTENTS

INTRODUCTION

The prevention of blindness encompasses a multitude of activities within the framework of primary health care systems. Many issues related to community development and general public health measures may influence the prevalence and severity of blinding diseases. The evaluation of blindness prevention therefore requires a broad, intersectoral view, considering the input from several health programmes within the national health infrastructure.

Evaluation should be an integral component of blindness prevention programmes based on primary health care systems, whether it is a question of limited or full-scale national efforts. Evaluation is an important managerial tool, that can help to identify strengths and weaknesses within a programme, so that these can be addressed and the programme modified as required. The continuous monitoring of activities relevant to blindness prevention within several sectors and at various levels of the national health infrastructure is essential to ensure the availability of sufficient information for the evaluation process. In the absence of a strong and systematic evaluation component it is often impossible to address constraints and impediments and to analyse whether the programme can be carried out more efficiently, conserving human and fiscal resources.

1. EVALUATION PRINCIPLES AND COMPONENTS IN RELATION TO THE PREVENTION OF BLINDNESS

1.1 Evaluation principles

The nature and extent of the evaluation process will necessarily vary with the type, aims and extent of blindness prevention activities, and the resources made available for that purpose. In all instances, however, evaluation should be planned and instituted from inception, otherwise baseline data, vital to measuring changes brought about by intervention, may not be made available. A portion of a programme's resources, adequate for conducting the planned evaluation, should be assigned to this component from the outset.

Because of their limited size and scope, and the additional resources that can often be brought to bear, pilot projects lend themselves to more intensive and exhaustive evaluation than large-scale regional or national programmes. The lessons learned in these pilot projects are invaluable in designing and organizing the larger effort, whose evaluation thus becomes simpler.

Regardless of the type or extent of the programme, evaluation should, as much as possible, derive from and within the regular evaluation scheme of the country's primary health care programme. In the few instances where primary health care programmes do not yet exist, a primary eye care programme can serve as the locomotive that initiates the process. Even so, much of the evaluative machinery should be designed to form a template for, and ultimate inclusion in, a regular ongoing primary health care system.

In view of the fact that eye care delivery requires a referral network, for the large numbers of patients requiring surgical intervention (cataract, trichiasis, trauma, glaucoma), evaluation must also involve secondary and, occasionally, tertiary levels. This too should increasingly be carried out in the context of the general health services' delivery systems.

As much as possible, evaluation should be carried out as a regular, continuous, integrated process. Occasionally, however, specially initiated activities, such as repeated blindness and ocular morbidity prevalence surveys, may be required to provide periodic, well-standardized and highly specific appraisals to serve as fixed indicators in the course of the programme.

1.2 Evaluation components

In general, an evaluation examines process (the way the project is being planned and carried out) and outcome (the effect it is having). Measurement of outcome is essential in order to demonstrate to key decision- and policy-makers that the programme is effective in achieving its short-term, intermediate and long-term objectives. For example, a trachoma control programme based on antibiotic prophylaxis should result in a significant reduction in

the prevalence and severity of active trachoma within months; a programme based on changing hygienic and cultural practices may take considerably longer, but changes in the practices themselves can serve as an intermediary precursor suitable for evaluation. In either case, it may take many years before a reduction in the prevalence of blindness can be demonstrated, as those irreversibly blind remain with us until their death.

1.2.1 The following points should be considered in the evaluation process, in the order listed[1] :

- *Define programme objectives*

  The ultimate, long-term goal is the elimination of avoidable blindness. A series of specific objectives characterize the manner in which this goal will be reached, by action within several sectors and at various levels of the national health system.

- *Define programme targets*

  These should be well thought out, clearly-stated, concise statements of what the programme is intended to achieve in the short- (0.5-2 years), medium- (3-5 years) and long-term (more than 6 years) perspectives. Targets should be measurable, such as a specified increase in the number of health workers trained in eye care within a given period of time.

- *State the specific subject of the evaluation*

  This may address either the whole programme or some component of it, e.g., provision of cataract surgery. The purpose and intended use of the evaluation should be made clear.

- *Ensure that all the information needed for carrying out the elements of the evaluation is available*

  This may include descriptive, qualitative, and quantitative information and data as required. Important information can come from ongoing programme monitoring.

- *Define evaluation indicators*

  These are variables that demonstrate changes produced by a programme, e.g., an increase in the number of allied health personnel or in the number of cataract extractions performed. Indicators may be defined for each evaluation element, (see 4.), but particular attention should be paid to the global indicators already in place[2], to determine whether they may be suitable as "proxy" indicators for the prevention of blindness.

- *Establish criteria*

  Criteria provide a specific - quantitative or qualitative - standard, for each indicator by which progress towards attaining objectives can be assessed.

  Example : objective : elimination of blinding cataract
  indicator : prevalence of blinding cataract
  one criterion : 50% reduction in prevalence of blinding cataract
  one target : 50% reduction in prevalence of blinding cataract within 5 years

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1 : Health Programme Evaluation, WHO, Geneva, 1981

2 : Development of Indicators for Monitoring Progress towards Health For all by the Year 2000, WHO, Geneva, 1981

1.2.2 The following steps comprise a programme evaluation :

- *Assess relevance*

The programme should be relevant in terms of a country's general health policies and development of national health infrastructure, and in terms of the programme's ability to achieve its stated objectives.

The following are possible indicators for assessing relevance :

(a) To what degree is the government committed to the blindness prevention programme?

A strong commitment often suggests that some sort of successful programme is already in place. A weak commitment may explain, at least in part, why a potentially well-designed programme is faltering.

Consideration of government commitment would include the following :

- Is there a stated government policy towards blindness prevention and delivery of eye care services?
- Is the prevention of blindness integral to national health plans based on primary health care?
- Has a National Committee for the Prevention of Blindness or similar group of intersectoral nature been established?
- Has the national policy led to the formulation of a definite programme? How extensive is this programme?
- What proportion of available health resources has been committed to the programme? Is this reasonable, given the size of the task and competing priorities?
- What priority does the programme have within the government?

(b) To what degree is the programme a priority of the people?

- Are there groups or individuals outside the government committed to blindness prevention activities? Are they organized?
- Are there any voluntary blindness prevention committees, and how do they interact with one another?
- Are these groups or committees active, and do they have visibility and influence?
- Does the community recognize the need for prevention of unnecessary blindness? Do they use the eye health services available and accessible?

- *Assess adequacy*

The adequacy of a programme for the prevention of blindness may be considered as follows :

(a) Is the programme adequately designed?

- Was information available on the magnitude, causes and distribution of blinding diseases to design a rational programme?
- Does the programme adequately address major needs and priorities in the prevention of unnecessary blindness?

- Does the programme make optimal use of present-day knowledge about blinding disorders and their control? Has the provision of eye care been addressed within the context of the nation's resources and health care delivery system?

- Are individuals at various levels of the health system making optimal use of their training?

- Is there a proper balance or ratio between workers and resources at the various levels of the health care system?

(b) Is the programme adequately managed?

- Does a strong supervisory structure exist for checking and maintaining quality control at all levels of the national health system, based on primary health care? Have goals and schedules been established?

- Does a formal focal point for management at the central level exist, with adequate managerial training and experience?

- Does the focal point for management have stability?

- Are managerial procedures carefully spelled out and documented, including links to other programmes? Is this documentation widely available? Are the procedures being followed?

- Is evaluation an integrated component of the managerial procedures? With what alacrity are defects identified and addressed?

- *Review progress*

This involves the documentation of actual efforts made and resources used in comparison to what was planned. The purpose of a progress review is to help monitor and control ongoing activities to ensure that operations are proceeding as planned, are on schedule, and within the budget. Examples are the number of eye examinations performed in a given period of time in comparison to the number planned, or the number of cataract operations carried out in relation to the number planned.

- *Assess efficiency*

Efficiency refers to the assessment of progress in terms of the efforts and resources expended to achieve it. This assessment examines the appropriateness of the operational level of the programme, its integration into primary health care, methods employed, manpower deployment, budget, facilities and equipment, and managerial control in relation to the progress that has been made.

- *Assess effectiveness*

Effectiveness is a measure of how well the programme has attained its targets or objectives, for example, the contribution it has made to reducing the cataract caseload or to reducing the incidence of trachoma. Where possible, the extent of attainment should be quantified, but can also be expressed in qualitative terms, such as the degree of community satisfaction and personal well-being attained. Cost-effectiveness and cost-benefit analyses of alternative strategies also come under this heading.

Progress and effectiveness should be separately distinguished components in an evaluation process, but it is possible for these two components to provide different conclusions about the same programme.

Suppose, for example, that a programme has an objective to eliminate avoidable blindness due to cataract and a target to complete 100 000 cataract operations in a five-year period. At the end of five years, 100 000 cataract operations have been completed, but, because of increasing incidence of cataract, there are actually the same number of

cataract blind as at the beginning of the programme. The programme could demonstrate progress over the five-year period (i.e., 100 000 cataract operations completed), but the programme could not demonstrate effectiveness with respect to the objective of eliminating avoidable blindness due to cataract.

- *Assess impact*

Impact refers to the overall and often long-term broad effect of a programme on health and the general socioeconomic situation. The assessment of impact requires the consideration of effects of other health programmes and sectors, and also of how blindness prevention activities may have reinforced primary health care systems. Furthermore, a programme may not only have achieved its objective of perhaps eliminating the backlog of unoperated cataracts, but by doing so improved the economic well-being of individuals, their families and communities, and the quality of life among its target population. Another example of impact is the achievement of onchocerciasis-free zones, thereby permitting resettlement of communities in agriculturally productive areas. Furthermore, it is known that blindness is related to a shortened life-expectancy; therefore, blindness prevention programmes may have an impact on longevity.

2. EVALUATION LEVELS AND THEIR APPLICABILITY

2.1 Levels at which assessment occurs

Almost all of the aspects mentioned above are relevant at each and every level of the delivery system. While government policy often rests at the national level, actual policy implementation will reside at a state, provincial or even district level. Policy and implementation require evaluation at each of these levels, which should be carried out within the evaluation of national health infrastructure based on primary health care.

In some instances, such as mass media education, campaigns are carried out at the national or provincial level. For the most part, however, eye care delivery and prevention of blindness activities are integrated into the health care delivery system. This has its own system of levels: the primary level, the first referral/intermediate level, and the tertiary level. Adequacy of programme formulation and competence of the managerial and technical capacities at each of these levels is important. This also applies to other activities within the primary health care system, as follows :

- Are activities delegated to the the most peripheral level of health worker capable of dealing with the problem?
- Has each level of health worker received training adequate to his or her task?
- Are there opportunities for refresher courses, upgrading skills, and career advancement?
- Do individuals at the next higher level provide feedback, motivation, and training to those below?
- Is there an equitable and cost-efficient distribution of resources between the levels?
- How are the various levels of workers perceived by the community, and are their services used to the fullest possible extent?
- If the levels are underutilized, is it because of an imbalance in requirements, impediment to their use by the community (financial, accessibility, etc.), or for cultural/motivational/educational factors?

2.2 Application

The application of an evaluation process should not be limited to the official health structure, but should also involve the community. Nongovernmental agencies and civic institutions, such as Lions Clubs, Rotarians, women's associations, religious institutions, societies for the blind and the like, often make significant contributions to eye care

services and prevention of blindness activities at both the national and local levels. International agencies are also often involved. The contributions these make need to be evaluated as well. In some instances, these same organizations and associations can assist in the evaluation process.

3. SUBJECTS AND SOURCES OF INFORMATION FOR THE MONITORING AND EVALUATION OF BLINDNESS PREVENTION PROGRAMMES

The evaluation of blindness prevention should ideally form part of the overall evaluation of health programmes and services within the national health infrastructure system. However, appropriate data on the health situation and trend assessment may not be available in a country, and most national programmes for the prevention of blindness include several objectives, both for the prevention and control of specific blinding diseases and visual impairment, and for the provision of eye care as part of primary health care to all populations. Thus, the overall evaluation of a national programme must take into account these aspects, both of which contribute to the long-term goal of elimination of avoidable blindness in a community.

In most countries, the evaluation of blindness prevention programmes will include, or to some extent be based on, the monitoring of activities and results at various levels. Monitoring systems are, therefore, of great importance to ensure the availability and flow of data, which may be utilized in the evaluation process.

The following principal areas and subjects should be considered in this context :

3.1 Monitoring and evaluation of specific eye diseases and blindness

(a) Monitoring and evaluation of specific eye diseases, which may be based on several sources of information, as outlined under 5.

(b) Monitoring and evaluation of blindness, which may be divided into three categories, namely:

- blindness due to corneal disease
- blindness due to cataract
- blindness due to posterior segment disease

Corneal disease will refer mainly to trachoma, xerophthalmia, trauma and corneal infections; posterior segment disease may be further specified, particularly concerning glaucoma, if diagnostic competence and reliability in the data collection allow. (See 5.)

3.2 Monitoring and evaluation of health infrastructure and the delivery of eye care at various levels

This may have included the training of several categories of manpower involved in blindness prevention activities and delivery of eye care, and the coverage and quality of eye care as part of primary health care. It should also consider logistic aspects, such as the supply of essential drugs and ophthalmic equipment.

3.3 Monitoring and evaluation of the utilization of eye health services at the various levels by the population served

This may, if possible, include an assessment of effects of health education, the relationship between need and demand for eye care and consumers' attitudes.

Sources of information concerning health infrastructure and manpower development are usually available within the national health administration, but may need to be complemented at the local level concerning the input from volunteer services and private groups. The assessment of quality of eye care may be complex, requiring both the assessment of capability and skills of personnel in eye clinics/institutions, and supervision and monitoring of the performance of staff at the peripheral level, including community health workers.

The utilization of eye health services may also be difficult to assess, but may be based on surveys on "Knowledge, Attitudes and Practices" (KAP) in selected areas and populations, as outlined under 5. Another source of information in this context is the reporting of the number and nature of consultations for eye care at the peripheral level.

4. IDENTIFICATION AND UTILIZATION OF INDICATORS AND CRITERIA RELEVANT TO THE PREVENTION OF BLINDNESS

The global indicators defined for monitoring progress towards Health for All by the Year 2000 should, whenever possible, be considered for use as "proxy" indicators for blindness prevention activities. However, depending upon the state of ocular morbidity and visual impairment in the country, the ultimate goals of a programme may be the reduction in the prevalence of avoidable blindness and/or the provision of eye care throughout the population. Populations in which the rate of blindness exceeds 0.5% overall, or 1.0% in any one community, must, as their long-term goal, achieve figures below these levels. Corneal blindness (from xerophthalmia, trachoma, infection and trauma) and onchocerciasis are largely untreatable in developing countries. Even if new cases are entirely prevented, prevalence rates will remain high as long as established cases live. Even though cataract surgery can restore sight to those already blind, it may take years before increases in the volume of surgery can make significant inroads into the usually large backlog of established cases, while keeping up with new cases. The one exception, of course, would be the demonstration in pilot projects in which all available resources are mobilized for an intensive campaign within a limited population.

Recognizing that it may take a long time to reach a programme's ultimate goals, it is nevertheless essential to gauge progress along the way, to retain visibility, to gauge success and progress towards that goal, and to identify problems requiring attention or modification of design or function. It is, therefore, necessary to establish short-term and intermediate objectives, which address each of the major diseases of concern. Indicators by which developments in each of these disease-related objectives can be measured, will vary with the evaluation period (short-, medium- or long-term). The targets, or anticipated schedule by which progress will be gauged, e.g., the degree or level of accomplishment over a chosen time period, will depend upon the initial magnitude of the problem and the size and rapidity with which adquate resources can be mobilized. (See 5.)

Due consideration may also be given to the use of blindness as a "proxy" indicator in itself. Blindness rates in developing countries reflect a variety of development aspects of a community, such as hygiene and education (trachoma), nutrition and infant mortality (xerophthalmia) and availability and utilization of health services (unoperated cataract).

5. AVAILABILITY AND USE OF SPECIFIC DATA ON OCULAR MORBIDITY AND VISUAL LOSS

In most countries, there is still a lack of reliable data on the health situation with regard to specific diseases, and particularly on blinding disorders. This has implications on the integration of blindness prevention activities into the primary health care system, as data on the prevalence and severity of locally endemic diseases are needed.

5.1 Baseline data

To measure a change in ocular morbidity and disability requires baseline data on the ocular status of the population before any interventions are introduced. Although existing data may bear on this question, such as census data, registers for the blind, and "statistical" reports from hospitals and clinics, they can only provide a rough measure of the causes of blindness likely to be encountered. Hospital statistics, as well as those from schools for the blind, are of some value in the planning of health infrastructures, but they are too unrepresentative and unreliable to be used as a standard against which to measure progress, or as a basis for designing an effective intervention programme. Instead, it is generally necessary to carry out a carefully designed and executed population-based prevalence survey. Pilot surveys can be initiated in selected areas, such as those of suspected high endemicity of trachoma, and once intervention programmes have been launched there, the survey can move, in stages, to the remaining target areas.

Surveys may appear, at first, to be complex and expensive, but they can be carried out in selected areas, utilizing auxiliary staff, and they do more than merely count the number of blind. A properly conducted survey will identify the prevalence and major causes of blindness, and their milder, precursor disease (severe inflammatory trachoma, night blindess and Bitot's spots, etc.); high risk populations to which services can be directed for increased efficiency (social groups, age ranges, sex, localities); locally available resources, and factors leading to blindness that may be amenable to intervention. In other words, the baseline survey not only establishes the level of disease against which progress can be measured, but also provides information vital to planning a national and effective programme. Designing and initiating an intervention programme without a preliminary survey will appear to save money in the short-term, but ultimately will undoubtedly be far more costly and prevent adequate evaluation of the programme.

5.2 Follow-up data and comparisons

5.2.1 Routine sources of reporting/monitoring

Data on eye diseases and blindness can be made available from a number of levels and sources. While the accuracy of diagnosis is likely to be greatest at secondary and tertiary facilities, the highly biased nature of their referral system suggests that there are advantages in accumulating as much reliable data as possible from the peripheral units. It is, therefore, of the utmost importance that the training in eye care given to primary health care workers includes the simple recognition and reporting of common eye disorders.

In situations where a further increase in the diagnostic capabilities of, and reporting from, health units may overload the local personnel, a limited number of peripheral units may serve as sentinel clinics. These can be selected on the basis of already reporting significant numbers of cases of diseases concerned. In these clinics, the personnel is likely to be proficient in diagnosing those diseases, and serve a population in which the disease is prevalent. With limited input, primarily in the form of refresher training, and establishment of a simplified, standardized reporting system (generally a simple line listing of cases by age, sex, locality and severity for a limited number of the most important diseases), these sentinel clinics can register changes in the number and pattern of cases seen each year, which may provide a rough, inexpensive and ongoing indicator of incidence and intensity of the diseases in question. Data should be collected as part of routine activities by the staff, and collated on a regular basis, and the sentinel clinics provided with feedback, including occasional supervisory visits to maintain their standards and motivation.

All health personnel performing eye surgery should keep a simple checklist of operations performed by age, sex, locality, whether it was the first or second eye, and, if appropriate, the visual outcome. A copy of this list should be made available to the planning/monitoring/evaluation staff on a regular basis.

Indicators based on regular reporting systems can provide important short-term information on changes in the pattern of blinding or potentially blinding diseases :

Cataract : the number of operations performed (unilateral/bilateral)
Active xerophthalmia & Inflammatory trachoma) number of cases, of varying intensity, encountered at sentinel clinics or, if possible, by community health workers

It should be remembered that :

(a) there may be an increase in the number of cataract operations in the short term, which implies an improvement in the eye care delivery situation, whereby more people in need of surgery will receive it;

(b) the number of xerophthalmia and trachoma cases may increase in the short term, either as a result of worsening environmental/nutritional conditions not yet overcome by the programme implementation, or because of increased awareness and referral of affected individuals to the sentinel clinics.

5.2.2 Specialized data collection systems

The regular ongoing reporting system provides an inexpensive means of identifying short-term changes. It is, however, selective and potentially biased in nature, since the reports do not necessarily reflect changes in disease in the population at large. Detection of these changes can only be achieved through population-based prevalence surveys in selected areas. For some conditions, such as the prevalence and severity of inflammatory trachoma or the prevalence of night blindness and Bitot's spots from vitamin A deficiency, these surveys can provide another short-term indicator of progress. Similarly, such surveys can provide data that may serve as medium-term (3- to 5-year) indicators, to demonstrate changes in the prevalence of common forms of disease.

These surveys may be carried out on a periodic basis, in randomly selected populations served by the programme. The number of persons surveyed need not be large, if only the more common eye conditions are looked for (cataract, night blindness, Bitot's spots, active inflammatory trachoma and trichiasis). Sampling can be made more efficient, and the number surveyed reduced even further, by examining only pre-schoolage children (for xerophthalmia and active trachoma) and adults aged 50 years and over (for cataract and trichiasis). These are the ages at which the above conditions are most prevalent, and the ages at which individuals are most likely to be at home and readily examined. Disease-related indicators of medium-term objectives may be the following :

- the prevalence rates of blinding cataract and of trichiasis
- the prevalence rate of night blindness and Bitot's spot
- the prevalence rate and severity of active inflammatory trachoma

Surveys may also include an assessment of "Knowledge, Attitudes and Practices" of the population concerning eye health and the utilization of eye care services. Such an assessment may be applied to a smaller number of individuals, but include other age groups, particularly young mothers with regard to trachoma and xerophthalmia control. Where a programme is attempting to alter xerophthalmia rates by changing childhood feeding practices, or active trachoma rates by encouraging face-washing, changes in attitudes and practices in these areas represent a valid intermediary measure of programme progress.

At the village level, one may also wish to assess a limited number of indicators, of socioeconomic development (e.g., introduction of a school, electricity, piped water supply, major industry), to try and distinguish improvements in ocular status secondary to the programme from those likely to have occurred as a consequence of economic development.

The ultimate, long-term indicator of the programme's achievement will be the degree to which it has reduced the total prevalence of blindness due to the major diseases concerned, with due consideration being paid to the possible input from other programmes/sectors. This goal is necessarily long-term, since one must wait for the incurably blind to die and for preventive and curative outreach services to be established and fully effective. Since blindness rates will be low, sample sizes must be large. One can again increase survey efficiency by limiting the examinations to the high risk pre-schoolage and elderly groups. On the other hand, a great deal can be learned from the change in blindness rates over all ages. If possible, therefore, this definitive study should cover a representative sample of the entire population served by the programme.

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Summary of short-, medium- and long-term indicators of success in meeting targets for reducing rates of blinding diseases

Short-term (0.5 - 2 years)

Cataract	: Number of operations performed.
Trachoma and xerophthalmia	: Sentinel clinic and/or community health workers' reports on number (and severity) of cases of active disease.

Short- and Medium-term (0.5 - 5 years)

Village-level randomized prevalence surveys :

- of pre-schoolage children	- for active xerophthalmia (night blindness, Bitot's spots) and trachoma;
- of adults over 50 years	- for blinding cataract and for trichiasis; and
- of a small, representative group	- for relevant "Knowledge, Attitudes and Practices" concerning eye care.

Long-term (more than 6 years)

Definitive prevalence survey for blindness from corneal disease (by cause), cataract, and other disorders (glaucoma and posterior segment disease).

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5.2.3 Indicators for gauging success in providing eye care as part of primary health care

Where the purpose of extending eye health services is to reduce blindness rates, then the short-, medium- and long-term indicators of success in reducing the prevalence of blinding diseases will reflect, in part, the degree to which this is accomplished. While coverage of health services is usually easily ascertained, the utilization of local eye health services can be assessed in a "Knowledge, Attitudes and Practices" component of a population-based survey.

Other measures of success include number and quality of health personnel and other persons (teachers and volunteers) trained to provide eye care at different levels; the number actually posted and in place; and the type and quantity of services provided. The latter two components should be regularly determined as an integral part of the supervisory/monitoring process. The criteria against which progress can be judged will depend, to a large extent, on the stage of development of the general health care system.

6. REPORTING SYSTEMS AT VARIOUS LEVELS

An appropriate system for reporting of information from the various levels of eye care constitutes a valuable monitoring mechanism, which may be utilized in the evaluation process. In this context it is necessary to have a clearly defined reporting system, and to verify the quality and reliability of the information collected. In fact, much monitoring takes place as part of a supervisory process, in which the problems identified can be dealt with quickly. Training and standardized reporting should begin at least one year before programme implementation to serve as a baseline for future comparisons.

As previously stated, data on blinding diseases should, as far as possible, reflect the situation at the peripheral and community levels. It is therefore desirable to have some kind of simple reporting procedure carried out by community health workers, sometimes assisted voluntarily by community members. The varying local conditions in terms of needs and resources for the implementation of eye care as part of primary health care will necessitate a flexible approach as to the reporting on eye diseases at this level. Locally available personnel, their competence and workload will, therefore, obviously determine what is feasible. However, the following conditions may be considered as the most important for monitoring at the primary level, and may, over a period of time, yield valuable information as to the progress of a blindness prevention programme :

- Blinding cataract
- Red "sticky" eye
- Active trachoma/trichiasis
- Bitot's spots/night blindness

The reporting of data at this level should increasingly be included in the reporting system of the general health services. Data related to eye diseases collected by health workers and/or other personnel at the community level, as well as data from referral centres, should be forwarded through the regular, established channels to the district or comparable level. At this point, the data are still area specific, and should be directed to the managerial staff responsible for blindness prevention. The results should then be collated with those from any available and relevant prevalence surveys. This will permit the evaluation of programme performance overall as well as at the district and sub-district levels.

The reporting from eye health care institutions within the referral system should be standardized and selective, in order to provide meaningful information in relation to programme activities. Eye surgery can be reported in simple list form, as previously mentioned (see 5.2.1, page 9).

Attention should be paid to relevant information received from other activities related to the occurrence of avoidable blinding diseases; for example, reports on the status of childhood nutrition and immunization are of particular interest.

7. PREPARATION AND UTILIZATION OF EVALUATION RESULTS

Technical criteria and definitions

The primary purpose of the evaluation process is to provide information on the policy, managerial and technical aspects of the programme. In addition, it should furnish important information that would facilitate the mobilization of new resources or support for ongoing programmes.

In collecting data for the purpose of evaluation, especially during prevalence surveys, it is desirable that accepted standards and definitions, such as the WHO Classification of Visual Impairment and Blindness and the classifications for xerophthalmia and trachoma, be followed.

Data should be collated to provide information relevant to the indicators already identified. It is expected that the data required for evaluation would be available at a central level in the managerial structure. The evaluation itself may be an inherent responsiblity of the programme or be conducted by an external agency.

The comparability of such data collected over a diverse area and from different levels of programme implementation will necessarily vary in terms of reliability. The methodology for teams involved in the prevalence surveys should be repeatedly standardized as to the examination and reporting procedures. It is imperative that the standardization of data should include, *inter alia*, tests for inter- and intra-observer variation.

Assessment of results in relation to expected progress would be measured against the targets set within the stated objectives of the programme. Such measurement would take into account both the process and its outcome. The step-by-step assessment of the policy, managerial and technical aspects should indicate the strengths and weaknesses of the programme. Such information should provide an indicator of the direction that the programme should take and the need, if any, for reprogramming of activities. Such reprogramming may become necessary, not only as a result of identified weaknesses in the programme as a whole, but also because of developments in policy decisions, managerial structure and technical inputs unforeseen at the time of planning.

EXECUTIVE SUMMARY

The evaluation of blindness prevention programmes should be carried out within the overall evaluation of national health systems based on primary health care. The input from several sectors and other health programmes should be considered in this context.

(a) Evaluation is necessary for assessing and demonstrating programme accomplishments and for identifying weaknesses that need to be dealt with in order to strengthen the programme.

Although the blindness prevention programme will usually be a part of the primary health care system, evaluation should be included from the outset as an integral part of blindness prevention programme components, and provided with sufficient resources to accomplish its task.

(b) Evaluation of blindness prevention should, like the programme itself, be an integral component of the regular health evaluation scheme.

(c) There are several components to a formal programme evaluation process. These are set forth in this report to ensure that the evaluation is comprehensive and systematic and that its results will be meaningful. The following activities should be carried out before beginning an evaluation :

- Define programme objectives and targets
- State the specific subject of the evaluation
- Ensure the availability of information needed for the evaluation
- Define evaluation indicators for each stage in the process
- Establish criteria for each indicator

Once these tasks are accomplished, the evaluation should proceed according to the following steps :

- Assess relevance of the programme to national health policy and its own objectives
- Assess adequacy of programme design and managements
- Review progress
- Assess efficiency of methods, procedures and management
- Assess effectiveness
- Assess impact

(d) The absence of some pertinent data may occasionally necessitate blindness and ocular morbidity surveys. Baseline data are needed for programme formulation and as a basis against which to assess accomplishments. A prevalence survey should be conducted prior to the initiation of the intervention programme, and standardized reporting procedures should be established for all levels of staff trained in the recognition of preventable and curable ocular diseases.

(e) Since irreversibly blinded individuals remain in the population until they die, changes in blindness prevalence may occur slowly. Short- and medium-term indicators other than blindness should, therefore, be used to measure progress and effectiveness. A standardized monitoring system will reveal changes in the number of cases of xerophthalmia, trachoma and blinding cataract encountered by community health workers or at higher referral levels, and in the number of trichiasis and cataract operations performed.

(f) Health system reports vary in representativeness and reliability. Small-scale, simplified prevalence surveys in selected areas, limited to pre-schoolage children and adults over 50 years of age, may be used as short- and medium-term indicators of progress in controlling major causes of avoidable blindness by revealing changes in prevalence of precursors of blinding disease or of blinding cataract. Changes in "Knowledge, Attitudes and Practices" revealed by these same surveys can serve as intermediary indicators of progress in reducing blinding disease and the coverage and utilization of eye care services.

(g) The ultimate long-term indicator of success will be the unbiased demonstration of a reduction in blindness rates, both overall and by specific diseases (corneal, lenticular and posterior segment). A well-standardized prevalence survey, representative of the population ostensibly served by the programme, is required for this purpose.

(h) Evaluation covers aspects of a programme other than outcome, as a means of gauging its efficiency and planning its future, and the reasons, if any, for problems. These include indicators related to the government's commitment to the programme, the committee's support, acceptance and utilization of the programme, and the adequacy of the programme's design, management and implementation.

ANNEX 1

LIST OF PARTICIPANTS

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