

A VISION 2020: The Right to Sight - India Publication

VISION 2020: The Right to Sight – India is a national forum for eliminating avoidable blindness by year 2020. It is a key driver of the World Health Organisation (WHO) and International Agency for the Prevention of Blindness (IAPB) joint global initiative for eliminating avoidable blindness.

It is a collaborative effort of, INGOs, NGOs, eye care organisations in India and the Government to coordinate and advocate for improved eye care programs; gaining and sharing knowledge and think solutions together to achieve quality, comprehensive and equitable eye care.

VISION 2020: The Right to Sight – India's programs and actions plans are aligned with government's programme of National Programme for Control of Blindness. Our programmes are focused on developing all the departments in our member organisations' eye hospitals.

We enjoy a large member base of eye care organisations across the country.

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Divyajyoti Trust, Mandvi, Dist. Surat, Gujarat

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VISION 2020: The Right to Sight - India
Room No.205A, (2nd Floor)
Enkay Tower B & B1, Vanijya Nikunj, Udyog Vihar, Phase V
Gurgaon, Haryana 122016, India
Tele / Fax: +91-0124-4301-184
Email: info@vision2020india.org
Website: www.vision2020india.org



Vision Screening in School Children

A comprehensive school screening manual

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Email: info@vision2020india.org
Website: www.vision2020india.org

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डॉ. एन के अग्रवाल
DR. N. K. AGARWAL
उप महानिदेशक (नेत्र)
Deputy Director General (O)



राष्ट्रीय अंधता नियंत्रण कार्यक्रम
स्वास्थ्य सेवा महानिदेशालय
निर्माण भवन, नई दिल्ली-110108
NATIONAL PROGRAMME FOR CONTROL OF BLINDNESS
DIRECTORATE GENERAL OF HEALTH SERVICES
MINISTRY OF HEALTH & FAMILY WELFARE
NIRMAN BHAWAN, NEW DELHI-110108
TEL. NO.: 011-23061594, FAX : 011-23062702
E-mail : ddgnpcb2010@gmail.com
nkndindia@gmail.com

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Foreword

One of the major causes of avoidable blindness in India is refractive error particularly amongst the school going children. To tackle this important component of avoidable blindness, school children of all age groups need to be examined from time to time. In addition, presence of other ocular diseases that can occur in children like squint, amblyopia, congenital defects in one or both eyes, miscellaneous causes of low vision, vitamin A deficiency causing dryness of eye, infections like trachoma that can compromise corneal clarity in the long run, also need to be picked up and treated at an appropriate time.

There is provision of free spectacles to school children by National Programme for Control of Blindness has also by Sarva Shiksha Abhiyan and some of the established active NGOs. More than a million or two children annually receive free spectacles from the agencies mentioned above.

Therefore, vision screening and complete eye examination of children is an all-important activity and a manual in this direction will serve as a useful guide for those involved in vision screening for carrying out the exercise properly.

I will encourage District Programme Managers (DPMs), School Health Programme Medical Officers, PMOAs, NGOs and all other persons interested in taking up the school vision screening activities to make use of this comprehensive manual for vision screening and eye examination in school children.

I congratulate VISION 2020: The Right to Sight – India for bringing out this manual to mark the celebration of World Sight Day on October 10th 2013, wherein the theme is "Get Your Eyes Tested"

(Dr. N.K. Agarwal)

Foreword

Children with blindness suffer long years of disability which severely impacts their overall development and restrains them from any meaningful participation in social and economic activities. Uncorrected Refractive Error (URE) is one of the major reasons for visual impairment among children, especially in the age group of 5-15 years, with Myopia leading the list of refractive errors.

For addressing this issue, Government of India, under the National Programme for Control of Blindness (NPCB), has been implementing the school screening programme. Similarly, the Education Department under Sarva Shiksha Abhiyan (SSA), along with the support of Health Department, NGOs, Trusts and Foundations are doing school screening for reducing prevalence of visual impairment among children.

Despite committed and dedicated efforts of all these agencies, the quality of school screening and dispensation of spectacles and other associated services continues to be a matter of concern owing to the lack of standard protocols that can be followed to ensure quality of service delivery.

For this very reason, Sightsavers has comprehended this manual to ensure it addresses the gaps in quality through planning, management and standardised procedures for screening in schools.

This manual is a repository of years of professional experience as gathered by Dr.Uday Gajiwala and his team from Tejas Eye hospital, DivyaJyoti Trust, based in Mandvi, Gujarat.

We, at Sightsavers, hope that this manual would help in guiding all stakeholders engaged in school screening activities relating to Blindness Control Programme as also overall school health programmes.



R.N.Mohanty
Chief Executive Officer
Sightsavers (India)

Foreword

Vision problem affects 13.5 million children and almost quarter of adolescents overall 12-17% children are reported to have eye vision problems. Poor vision in children affects performance in school or at work and has definite negative influence on the future of the child. Myopic children have trouble reading the black board notes or digital character of the class room presentation material displayed on screening.

School screening for vision in children is very essential and need to be made mandatory. Perhaps teachers and parents can help children who may be struggling with few vision conditions like squinting narrowing of eyes, headache, turning of eyes inwards, outward blurred vision, holding books too close all these need vision screening. The comprehensive eye screening program is being recognised at both DBCS and SSA level. Detection of refractive errors is essential to prevent amblyopia in children at the same time efforts must be made to provide and replace the spectacles to these needy children. The screening needs to be done every year since most of the refractive errors manifest after 10- 12 years of age. This journal will help to motivate all the stake holders in eye care to ensure effective screening of vision in children.

This manual has been made possible due to the initiative of Sightsavers. We take this opportunity to thank them for conceptualising the manual and supporting it.

We would like to thank Dr Praveen Vashist, Additional Professor and Head Community Ophthalmology Department, Dr. R.P.Centre for Ophthalmic Sciences, AIIMS, New Delhi; Dr Asim Sil, Chief Medical Officer, Netra Niramay Niketan Eye Hospital Haldia, West Bengal; and Dr Kuldeep Dole, Associate Medical Director, HV Desai Eye Hospital, Pune for reviewing the manual and providing valuable inputs towards making this manual comprehensive.

We would also extend our appreciation for Dr Uday Gajiwala and his team from Tejas Hospital, Mandvi, Gujarat for developing the manual.



Col. (retd.) Dr. M. Deshpande
President, VISION 2020: The Right to Sight – India

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1 Purpose

Purpose of this manual

This manual is designed for programme officers and managers of the Blindness Control Programme and School Health Programme in districts and states; NGOs; individuals and any other person / body interested in taking up the school vision screening activities. For undertaking vision screening programme at the district level, the programme manager will need exposure to various steps to be followed to complete this activity. Successful completion of this module will provide him/her the required skills to undertake this task with confidence.

Organisation of the Manual

The entire process of vision screening has been segregated into different activities. Each of these activities is described in a separate chapter. The chapters are:

1. Purpose
2. Introduction- Objectives and rationale
3. The need- Refractive errors in school children
4. Activities under school eye health programme
 - A. Planning for school screening
 - B. Arrange for refraction
 - C. Arrange for spectacles
 - D. Identify and train school teachers
 - E. Conduct the training
 - F. Conduct the screening
 - G. Monitor the progress
5. Evaluate the programme
6. Miscellaneous Problems
7. Reporting formats
8. References

In order to assist the school vision screening in acquiring practical skills for school screening, two types of exercises are built in this module:

- Practical exercise, aimed to simulate the actual working situation of the programme manager. Doing these exercises will emphasise the type of information required; and how to collect and utilise this information. The practical exercises are preceded by the sign.
- The learner may work at his own pace as no time limits are prescribed. Though the manual has been developed in the form of self-instructional materials, the training institutions are encouraged to use it for group learning. In this situation, it should be possible to complete the module in 3 days.

You should be able to find solution to your own problems. If the problems still persist, you can write or contact at the address given at the end of the module.

Who is the target group?

The primary target group are the programme managers under the Blindness Control Programme, or School Health Programme at the districts and states level; NGOs; individuals; and any other person / body interested in taking up the school vision screening activities. The learner can be a health administrator, a public health specialist, an ophthalmologist or an educationist. Other categories include teachers from medical and nursing schools. This manual is not meant for use by the school teachers.

Though this module has been designed for undertaking vision screening amongst school children, the principles described remain the same. If other groups are proposed to be screened for refractive error e.g. entire population, middle-aged presbyopia group, occupational groups like weavers, stone quarry crushers, welders, etc. adaptations can be made about the inputs required to undertake the vision screening programme- primary screeners, refraction facilities, provision of spectacles and monitoring/supervision for such groups.

2

Introduction - Objectives and Rationale

Refractive Errors (REs) are a major cause of blindness and visual impairment in many countries. They are the most common reasons for the outpatient visit to an Ophthalmic Surgeon or an Ophthalmic Assistant. Over a quarter of the outpatient attendance at all the eye clinics and hospitals is due to this ocular condition. The high prevalence of blindness due to the REs reflects poorly on the availability of refraction services and spectacles to the needy population.

Eyes are the most precious of our sense organs. They contribute greatly to one's learning capacities right from childhood. Good vision contributes greatly to the strength of health and wits. The ultimate moulding of a person's personality and potentiality rests with his nature, surroundings and quality of eye sight. The school going years are the formative years for determining one's physical, intellectual and behavioural development. Any problem in the vision during the formative years can hamper the intellectual development, maturity and performance of a person in his future life.

REs occur in all age groups. In children, these are due to defects in the size or any other anatomical structural defect of the eyeball; at middle age presbyopic corrections become necessary; and in old age, lenticular opacities (cataract) result in visual disturbances requiring optical correction.

Children usually don't complain of defective vision especially if only one eye is involved. They may not even be aware of their problem. They adjust to the poor eyesight by sitting near the blackboard, holding the book closer to their eyes, squeezing the eyes and even avoiding work requiring visual concentration. This evades early detection. Timely detection of these problems and their correction by spectacles can tremendously improve the child's potential during his formative years. Visual impairment is an avoidable burden in the life of a child, his family and the society. Periodic screening of all children helps in early identification of visual defects and correction of REs, by prescription/use of corrective spectacles.

Magnitude of Refractive Errors

World Health Organisation's definitions of blindness and visual impairment that is applicable to the correction of Refractive Errors (RE):

Blindness is defined as uncorrected Visual Acuity (VA) less than 3/60 in the better eye with available correction.¹

In India according to NPCB definition, the cut off for blindness is 6/60.⁶

Visual impairment is defined as uncorrected visual acuity less than 6/12 (20/40) in the better eye.¹

Uncorrected Refractive Errors (UREs) have now been considered very important since World Health Organization (WHO) is considering change in definition of VI to include presenting available VA instead of best-corrected VA which is the ideal situation in day to day life.¹ Elimination of avoidable blindness and VI due to URE is a major objective of VISION 2020-The Right to Sight, a global initiative taken-up by WHO and International Association of Prevention of Blindness (IAPB) to eliminate avoidable blindness.

According to the recent WHO estimates, globally there are 285 million people visually impaired and out of these 39 million people are blind (using internationally agreed VA cut off levels on vision chart which is VA <3/60, with available correction in better eye) and 246 million having moderate to severe VI (VA 3/60 to <6/18 in better eye with available correction).² It is estimated that 80% of blindness is prevalent among people in developing world and of this, 80% is avoidable blindness.³ The word "avoidable blindness" means that the underlying ocular condition is either preventable or treatable.

There are approximately 45.5 million people who are visually impaired globally due to UREs.³ There are 12.8 million children in 5-15 years of age group visually impaired due to REs globally with global prevalence of 0.96% and the age-specific prevalence among 15-39 years, 40-50 years and > 50 years being 1.1%, 2.45% and 2-5% respectively (presenting VA <6/18 in better eye in all age groups).⁵ Population based surveys done worldwide suggest that >90% of VI is due to myopia in the age group of 5-15 years.⁴

In India, the prevalence of blindness is 1.1 % and as far as main cause of blindness is concerned URE stands second with 19.7% just after cataract which is 62.6%.⁶ In other words, there are estimated 11 million blind people (presenting visual acuity < 6/60 in the better eye) in India and one fifth of total blindness is due to UREs. (However, the definition that is used in India is different from WHO definition which defines blindness as PVA of <3/60 in better eye.

The impact of UREs is manifold and may include loss of educational, employment and economic opportunities⁸. There is lack of evidence to suggest what the economic burden due to REs is. But, some suggest it to be significant as REs affect the most productive age group⁸. If people with REs are treated with spectacles their productivity increases significantly. This also means that UREs have the potential for huge market for spectacles and can support the sustainability plans of hospitals thereby reducing dependency on external funding, thereby contributing to the sustainability goal of VISION 2020- The Right to Sight.

Rationale

Globally there are 12 million children of school going age (5-15 years) visually impaired from UREs.⁵ Population based studies have suggested that more than 90% visual impairment is due to myopia in

this age group.⁵ So it is obvious that UREs are a major public health problem in this age group. Myopia also runs a risk of developing cataract, retinal detachment; macular degeneration, vitreous opacities, degenerations and open angle glaucoma etc. in later life. The intervention for correction of RE is also available in the form of pair of spectacles. The detection and treatment of URE among school children is highly cost-effective as has recently been proved by studies done in India and elsewhere in the world.^{9,10}

In India it is estimated that 2-3 % of school children in rural areas have refractive error.^{11, 12, 16}. In the urban areas the proportion is even higher. One study shows that 5.1% of children in schools had visual acuity of <6/12 in the better eye.¹³ Another study showed prevalence of myopia to be 7.4% in age group of 5-15 years in urban area.¹⁴

Pre-school children are not readily available at one place so that they can be screened. They are uncooperative for vision test leading to development of amblyopia, a condition that is difficult to revert to normal vision. Reaching out to this segment among children entails logistical problems and financial burden on the system. Considering these challenges pre-school screening is not advisable in developing country like India. School going children are "captive" group who are available at one place to be screened thereby easing the burden on logistics and finance. There is need for a comprehensive strategy to address eye health problems among school children especially in rural areas. There exists a mounting need to strengthen and modify established school eye health program in India as per local needs and conditions with an aim to enhance quality of life and educational capabilities thereby eliminating blindness and visual disability due to UREs among school children. The objectives and advantages of school eye health programme are as follows:

Objectives

1. To Identify and refer students with vision problems using selected vision screening procedures
2. To establish mechanism to deliver high quality refractive services.
3. To ensure availability of high quality, cost-effective and appropriate optical services.
4. To establish follow-up procedures to assist identified students in receiving appropriate care.
5. To generate awareness among parents, teachers and students about refractive error and compliance to use of spectacles.

3

The Need - Refractive Errors among School Children

Why school children

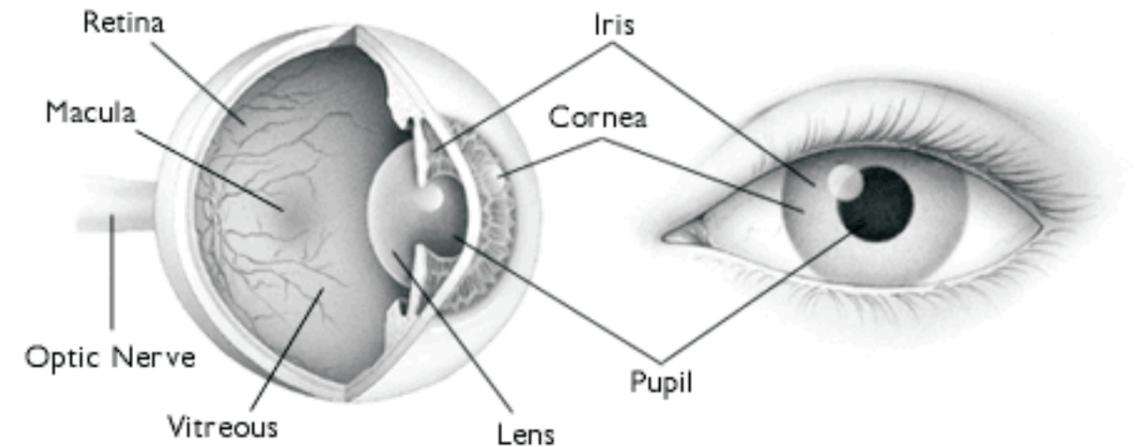
Children in the school going age (6-14 years) represent over 25 per cent of the population in the developing countries. In developed countries, most children attend school, while only half of them do so in the developing societies. It is estimated that in India, over 17% of the children between 6-14 years age group are out of schools¹⁸. This is further compounded by high dropout rate after Primary and Middle standards owing to socio-economic reasons. In poor families, children aged 8-10 years have to work in order to contribute to the family income. Many of them are withdrawn from the school at an early age itself. Despite this, school children still form a large, needy target group requiring identification and treatment of refractive errors due to the following reasons:

1. They are a "captive" group and can be reached through the organized educational system.
2. Reading and writing are their basic school level activities requiring good eyesight. Many children, their teachers and parents realize this.
3. Children are good ambassadors who can carry messages home on the need and benefits of eye test and good eyesight to their parents, siblings and friends, who are not attending schools.
4. Teachers are the ones who interact with their pupils daily. It is therefore possible for them to observe the behaviour of their students to facilitate early detection of vision defects.
5. School teachers can ensure compliance on use of spectacles among children who are provided spectacles.
6. School teachers can serve as good counsellors to parents and students and motivate them to use spectacles.
7. Use of school teacher makes it simple, as they are always available in the school.
8. It is well known fact that correction of REs improves efficiency of the child.
9. Workload on ophthalmic assistants is reduced.
10. Credibility of eye care services increases.
11. Other eye diseases can also be identified and referred for proper treatment.
12. Key health messages can be spread to community via school children (child-to-child approach) as they can be use as case detectors.

The proximity between the teacher and the students make the "school teacher" the most appropriate "primary screeners" for the vision screening programme among school children.

What are Refractive Errors

To understand the refractive errors, you have to look at the structure of the eye and physiology of vision. The structure of the eye is given below:



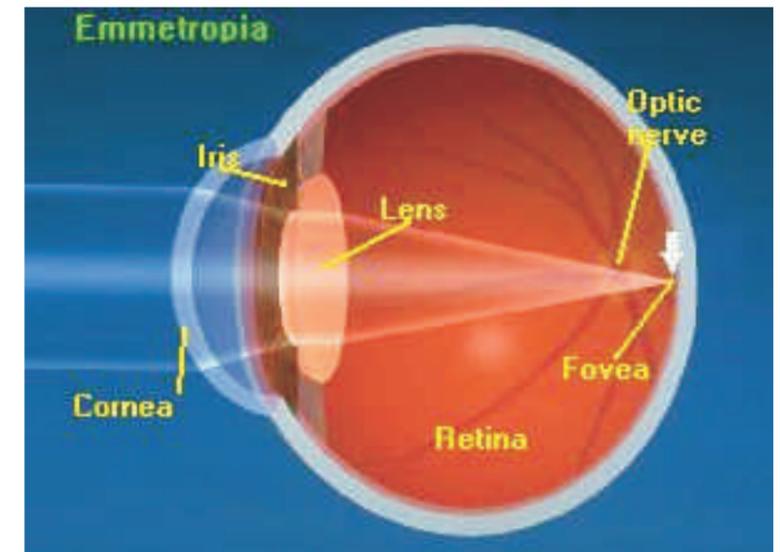
Refractive error is an optical defect of the eye. This defect prevents light from being brought to a sharp focus by the cornea and lens on the central retina, the nervous tissue that records light, as given in the diagram above:

If the light does not focus on the retina to form a sharp image, the vision is not normal in the eye. This is called **refractive error**.

Refractive error is usually present in both eyes, mostly to nearly the same degree. There are three types of refractive errors:

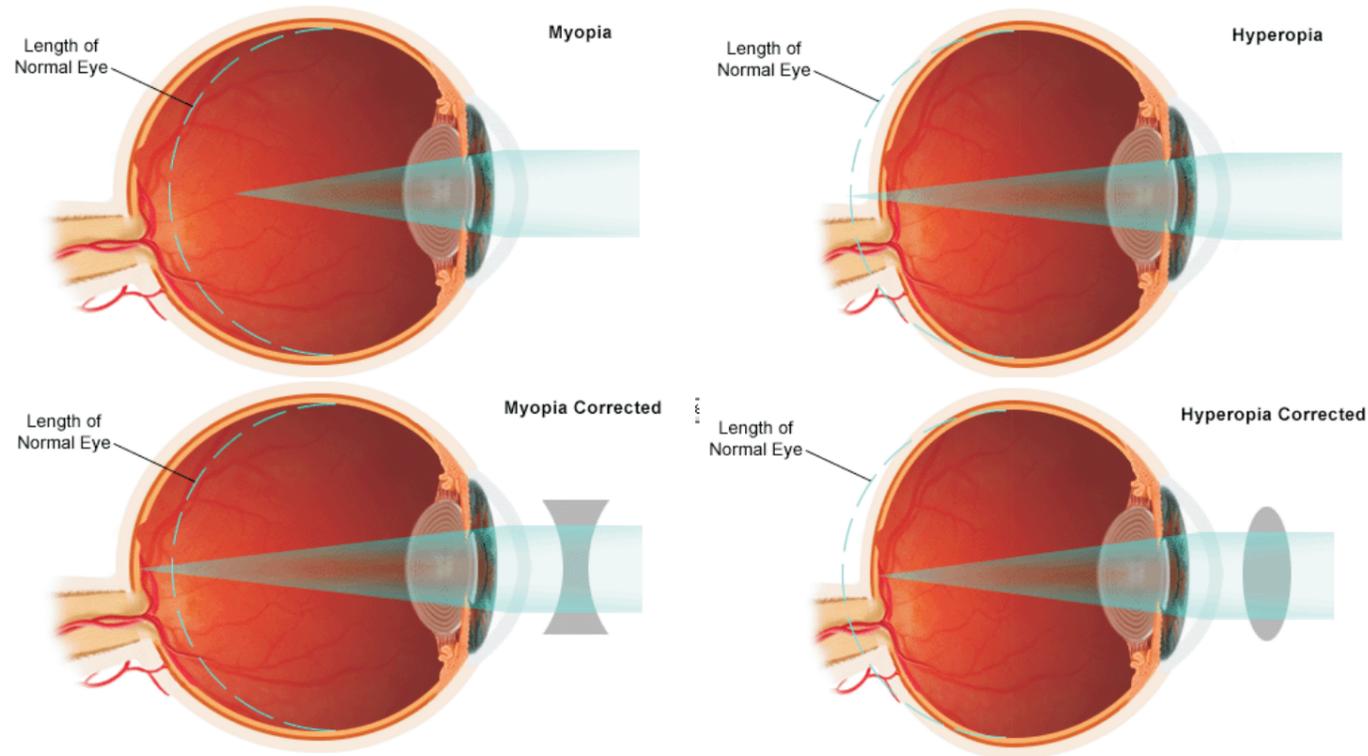
1. Myopia or short sightedness
2. Hypermetropia or far sightedness
3. Astigmatism or distorted vision

The diagram here shows vision in a normal eye (Emmetropic eye)- the light rays fall on the lens which focuses them on the central retina on the posterior wall of the eyeball to enable a person to see sharply and clearly. In refractive error, the light rays may get focussed in front or behind retina.



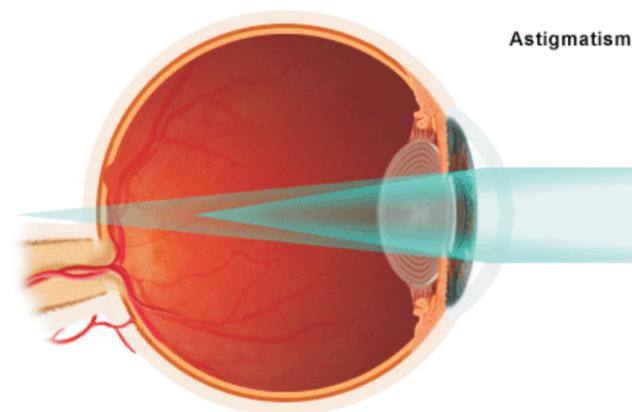
If the light rays are focussed in front of the retina, as shown below, a concave lens (minus power) will be required to make the light rays focus on retina and correct this defect. This condition is called **Short sightedness or Myopia**, which requires concave lens (minus power) for correction. This occurs in people who have good near vision but poor distant vision.

In the other condition, the light rays get focussed behind the retina. To correct this, a convex (plus power) is required in front of the eye, as shown in the diagram below:



This type of refractive error is called **Far-sightedness or Hypermetropia**. The distant vision is good but near vision is blurred.

Astigmatism is due to an imperfect shaped cornea and lens. With the result, the image on the retina is elongated or flattened. The image may be formed at two different places. The eye muscles work hard to correct this and make the picture clear. But this is not easily achieved and in some people, non-spherical cylindrical lens is required to correct this. Only proper detailed examination by a qualified expert can reveal presence of astigmatism and the power of the lenses required to correct this.



4

Activities under School Eye Health Programme

A. Planning for School Screening



Undertaking vision screening programme amongst school children can be compared to undertaking a journey. When you start on a journey, you first decide your final destination. Then you select the mode of transport after consulting the map and relevant schedules. You then approximately predict your arrival time at the final destination. However, when you actually undertake your journey, you may decide to change the route of your journey or mode of transport at some point of time depending on how well you're progressing. Sometimes this will mean a change in arrival time at the final destination. Before you actually depart for the journey, you also book in advance your accommodation at the final destination lest you run the risk of having an ordeal after your arrival. Once you complete your journey and return home, you like to assess how well the entire experience of the journey was, where the lapses or bad experiences were so that next time you undertake a similar journey, you take all the appropriate measures to make it more comfortable.

In planning for the vision screening programme you will first decide your goal (final destination). It may be:

- Cover all children of school going age 9-14 years
- Cover all school going children, or
- Cover school children in one/few blocks only, or
- Cover school going children of 5th to 9th standard

Then you select your strategy. This may be – utilizing the school teachers in carrying out the screening.



Knowing the constraints in the district, like the school vacation, availability of refraction facilities and the opticians, you can predict about how much time the programme will take for completion, say three months. You also make a note of different milestones you would come across while you progress with the programme – say procurement of required screening materials, training of teachers, screening by teachers, examination by ophthalmic assistants, provision of spectacles and use of the spectacles by the children.

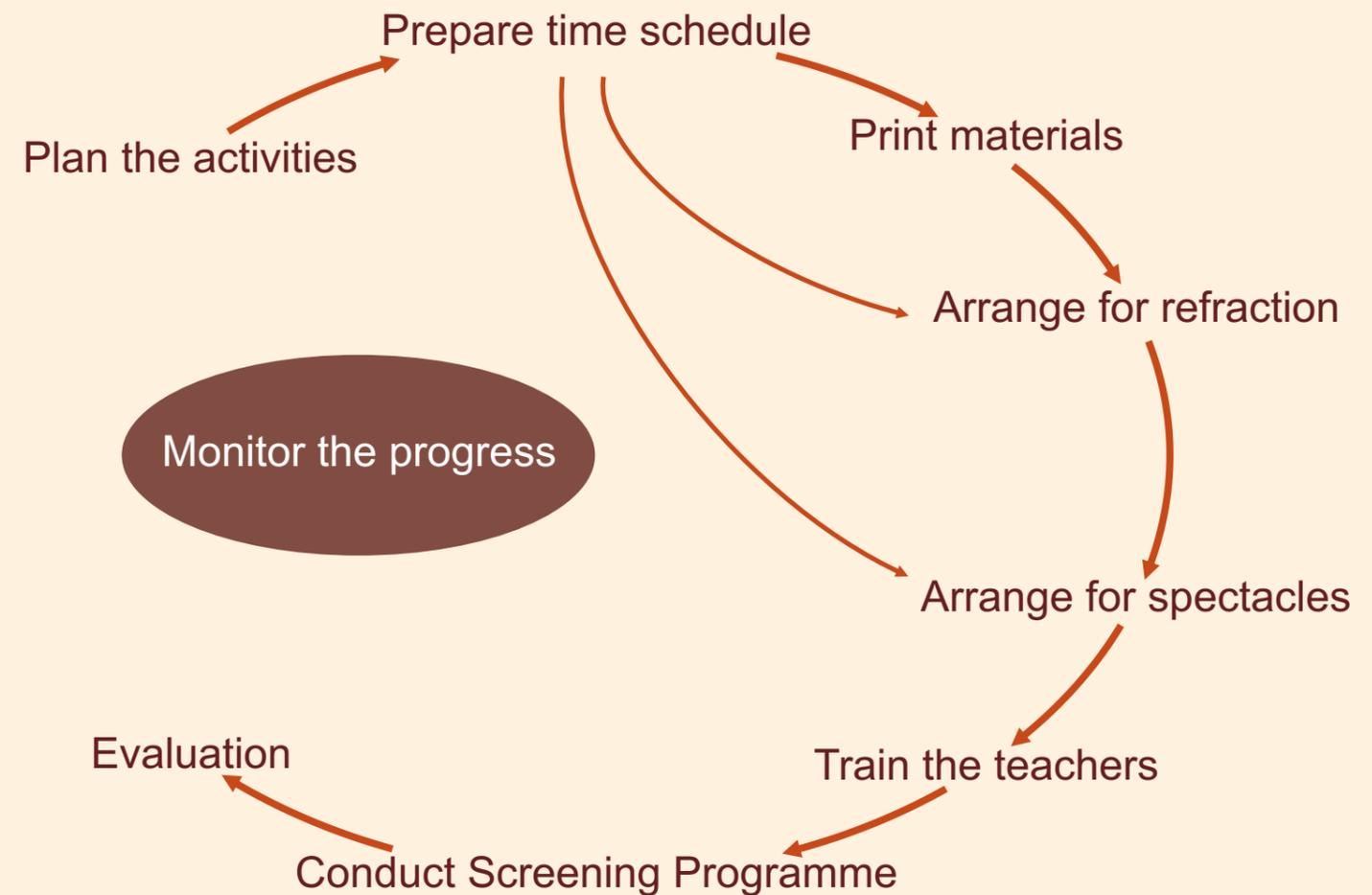
If, however, you find that you're not progressing well on schedule with all the steps in the programme, you may consider alternatives or even a change in the strategy. This will necessitate a change in the earlier time schedule.

What if the screening is done well but no advance arrangements are made for refraction of the children and provision of spectacles? Children with poor vision will be referred by teachers but they would not know where to go for refraction and spectacles. This will result in frustration with the teachers, students and their parents and upset the ultimate outcome of the programme. Just as you make advance arrangements for your accommodation before undertaking journey, it is necessary to make prior arrangements for examination of the referred children by ophthalmic assistant and provision of spectacles before starting the vision screening by the teachers. It is essential to complete all the steps in the sequence described in the flow chart on the following page to ensure completion of the entire activity.

As the screening progresses, it is essential to monitor the various steps by examining the data and looking at the milestones. At the end of the screening



Flow Chart



programme, you will evaluate it and look for any lapses during the implementation of the programme. For this, you will peruse the data on the proportion of the target children covered, provision of spectacles to the children with refractive errors, costs incurred, time taken, any lapses like high dropout from schools to ophthalmic assistants, erratic supply of spectacles, etc. they will help in taking appropriate measures before resuming the programme next year.

To summarise, **Vision Screening programme** will mean:

Objective: Cover all school going children in the district.

Strategy : Utilize school teachers to identify children with poor vision.

Milestones:

- Training of teachers
- Procurement and distribution of the required materials (Snellens chart, rope etc.)
- Screening by teachers
- Examination of referred children by ophthalmic assistant or referral to eye specialist, if needed
- Provision of spectacles to needy children
- Use of spectacles by children and follow-up

Outcome:

- Screening of all school children
- Provision and use of spectacles by children with refractive errors

The ultimate impact of the programme will be on the performance of children with improved eyesight. But this cannot be easily assessed. The improvement in the performance of the children in academic studies and in their work is a strong motivational tool for the school teachers and the parents to continue their interest in the programme. Monetary or material incentives for the teachers must be avoided and this activity should be perceived as a regular activity of the identified teachers. In the long run, vision screening should become a routine activity linked to school entry in secondary school or school health check-up.

Schedule the activities

The following Gantt chart is a proposed 3 months' schedule for various activities for undertaking vision screening programme in an area with approximately 100,000 Population:

Vision Screening Programme													
3 Months Schedule													
Activity	Week	1st month				2nd month				3rd month			
		1	2	3	4	1	2	3	4	1	2	3	4
Preparatory work		■	■	■	■								
Identification of teachers		■	■	■	■								
Training of teachers					■								
Arrangement for refraction and glasses		■	■	■	■								
Screening in schools						■	■	■	■				
Examination by ophthalmic assistants (including PMT)						■	■	■	■				
Provision of spectacles										■	■	■	■

The exact time schedule, however, depends on the prevailing conditions in the area. For example, if printing facilities don't exist locally, time required for the preparatory work will be more. The schedule should also take into account the local factors like school vacation, obstacles like monsoon season, workload of the Ophthalmic Assistant due to eye camps in the winter etc.

B. Arrange for Refraction

What will happen to the children who have been screened by the teacher as having poor eyesight? They will require two services - facilities for Refraction and provision of spectacles, if needed. No screening programme should be undertaken unless these facilities are arranged beforehand. Identifying children with poor eyesight but devoid of any access to the refraction services will only raise expectations of the people without serving any useful purpose. This will defeat the very purpose of the screening programme. These two topics i.e. arrange for refraction and arrange for spectacles, therefore, are discussed before the chapter on the screening process.

The facility for refraction should have qualified Ophthalmic assistant, dark room for examination, trial lens set and frame, pinhole, Snellen's vision chart and near vision charts, retinoscope, torch and a short acting mydriatic. It is likely that some of these items will have to be provided to strengthen the existing facility for refraction. However, if such a facility does not exist and cannot be provided, vision screening should NOT be started at all. In most cases, as in India, a paramedical ophthalmic assistant is usually posted at a block level Primary Health Centre by the state government and he can act as the referral point for the children identified by the teachers with poor vision for detailed examination and refraction. In some cases, there may be an NGO or a private ophthalmic assistant or an ophthalmologist who can provide refraction facility.





C. Arrange for Spectacles

Spectacles are the most important of all the services you offer in the entire vision screening programme. Failure to arrange for the spectacles for all needy children, irrespective of their capacity to afford, can prove fatal to the successful completion of the programme.

Children have different sized heads and may need different corrections. Standard spectacles, unlike the spectacles of same +10 Dioptre power for elderly people operated for cataract are not possible for correcting refractive errors in children. Each child with a refractive error will require a specific frame according to his head size and power of corrective lenses depending on the degree of the error he has.

In other cases, it may be possible to link up refraction facility at another convenient place nearby, or, train other health workers. Alternatively, an ophthalmic assistant posted in a nearby health centre can be deputed for a short period (say one week in a month) and all the referred children are examined during this period. An ophthalmic assistant can even adopt such a centre as a 'satellite clinic' for this purpose and organize a clinic once in a week or fortnightly. But make sure that the facility available is a regular one and the programme is not undertaken as a onetime ad-hoc activity. The essential thing is that the referred children must have access to refraction services. Normally, the refraction facility should be reachable within one hour by usual transport from all villages of the area.

Considering the small number of ophthalmic surgeons in most developing countries, an ophthalmic assistant will suffice for undertaking refraction work. An Ophthalmic Surgeon, if available, should only examine children with complicated astigmatism, squint, amblyopia and corneal opacities, referred by the ophthalmic assistant.



For this purpose an optician with good stock of lenses and good edging and fitting facility is required so that spectacle delivery time will be reduced. Most districts have private opticians. Therefore, for the vision screening programme, linkage needs to be established with an optician in the local area. The arrangement can be in the form of a contract by the local programme manager or the organizers with the optician. The contract must specify the type of arrangement (free or paid spectacles to the consumers) technical specifications of the frames and lenses, warranty, maintenance and repairing facility of spectacles, monitoring procedures, and the period of the contract. To ease the administrative procedures, it is advisable to fix a uniform rate for all possible spectacles – plus or minus; spherical or cylindrical. A sample of such a contract is given on at the end of this chapter.

Two types of arrangements are possible:

1. Supply of free spectacles by the Optician to the child against the prescription from the ophthalmic assistant and reimbursements made to the optician by the local programme manager at monthly intervals.
2. Arrangement for the costs, for direct payment by the guardian of the needy children. Indications of such costs should be given on the prescription slip or referral card issued by the ophthalmic assistant.

Experience has shown that such contractual agreements can be arrived at half the usual retail price prevalent in the local area. Since this activity generates publicity about the need for spectacles amongst the children and adults outside the school as well, the additional clientele for the Optician increases his volume of business. This serves as an additional incentive for the Opticians on contract and they agree for reduced rates in the contract.

Where more than one optician is present in an area, it is advisable to make simultaneous contracts with more than one optician. This creates competition about the quality of services and timely supply of spectacles.

It is also possible that there may not be any optician in the local area or nearby. In such circumstances, the programme Manager can work out an arrangement with an outside Optician for bulk supplies at fixed intervals. The Optician can visit the ophthalmic assistant's clinic once a month on a fixed day to collect the orders and supply the previous month orders. The Ophthalmic Assistant can arrange to provide these spectacles to the individual children as per prior appointment. If it is not possible to arrange for the spectacles, the screening programme must not be started at all.

Who Pays For The Spectacles?

This depends on the local situation. If the parents perceive the need for spectacles for their children and can afford, they should pay for the spectacles. Another option is making available the spectacles at subsidised rates. Otherwise, it would be necessary to locate the source of funding for the spectacles – Federal Government, State Government, local municipality, a donor or a philanthropist. Many areas have philanthropists and industrialists who wish to contribute for welfare activities, and funding of spectacles for refractive error is an input liked by many. The dust cover for the spectacles offers an opportunity to advertise the name of the donor and also put up an appropriate message. It should be emphasized that the cost of the spectacles account for over two third of the entire cost of the programme. Experience has shown that when the recipients pay, they use and take better care of the

spectacles. Therefore, the decision about who should pay for the spectacles should be carefully arrived at – preferably a compromise between the need, affordability by the parents and sustainability.

Certainly this will vary from district to district.

The type of spectacles arranged will reflect on the quality of the programme. Cheap and poor quality spectacles should be avoided and good quality spectacles may be provided.

Recommended one for mass use is Acetate frame with White English Lenses.

(Sample contact format)

DISTRICT HEALTH SOCIETY

Terms & Condition for the optician authorized to supply the spectacles to the school children

1. The spectacles will be provided free of cost to the school children referred by the ophthalmic assistant on production of the referral card.
2. Card not signed by the ophthalmic assistant with seal of DPM and school will not be eligible for free supply of spectacles by the optician.
3. The optician will receive the payment for the spectacles from the secretary of the District Blindness Control Society on the last working day of each month on production of the referral card signed by the guardian of the child. These cards will be retained by the Society after making the payment to the optician.

4. The following shall be specifications for the spectacles:

Frame – Acetate (different colours)

Lenses – White English

The costs to be paid by the society will be as under

Standard Acetate frame – ₹

Lenses – ₹

The above rates are inclusive of the fitting and service charges.

5. The spectacles provided by the optician will be free of air bubbles, scratches, waves & irregular shape and carry 3 month's warranty for repair or replacement for any manufacturing/fitting defect (e.g. loose hinges) free of cost.
6. The optician will supply the required spectacles within 15 days of receiving the request from the child. The optician is expected to keep enough stocks of the frames (of different sizes & colours) and the lenses to ensure timely supply of the spectacles to the children.
7. If the above specifications are not adhered to, or the child has been provided wrong lenses, as found later by the ophthalmic assistant, the optician will not be entitled to receive any payment for such spectacles. He will be asked to provide free replacement if payment was already received. If

this happens too often, the Society can terminate the contract with the optician even before the stipulated expiry of its period.

8. The optician can use the words 'OPTICAL SHOP AUTHORIZED BY THE DISTRICT BLINDESS CONTROL SOCIETY' for his document, display outside the shop and publicity. The optician is free to use any logo, display board etc, if any, provided by the Society.
9. The secretary of the Society or his representative can visit the shop of the optician for on the spot inspection related to stocks, records, procedure to fit the spectacles and behaviour with the clients.
10. The authorization will be valid for a period of one year from the date of signing the agreement. A fresh agreement will be required after the expiry of the current agreement.

UNDERTAKING

I agree to above terms and condition of the District Blindness Control Society. If I am found to be not concurring to any of the above clauses, this contract can be terminated by the Society even before the expiry of this agreement.

(Signature of the optician)

Date.....

Full Name.....

Address.....

.....

.....

AUTHORISATION

The District Health Society authorizes Ms (name & full address)..... as an authorized Optician to supply free spectacles to the referred school children against reimbursement by the society for period of one year, subject to the above terms & condition.

(Secretary, District Health Society)

Date.....

D. Identify and Train the Human Resource

Human resource includes

The teachers, paramedical ophthalmic assistants, mid-level ophthalmic personnel, ASHA worker, community based volunteers, ANMs or any other cadre.

Sensitise the district officials & programme staff

Since the vision screening programme is a new programme in the district, it is essential to inform and sensitise the key officials like the District Education Officer, District Health Officer, District Development Officer, Ophthalmic Surgeons & Assistants and the Headmasters/Principals of the schools. This will strengthen the interdepartmental coordination when the programme is functional and reduce the potential barriers and obstacles.

The sensitization programme will consist of:

1. Explaining the philosophy and the background of the programme
2. Describing the procedures
3. Identifying the tasks for the individual officials

The Headmasters/Principals, in addition, can be explained the need to identify a good and motivated teacher for the job and the criteria for such selection.

Identify the teachers

The Headmaster or the Principal of a school is the most appropriate person to identify one/two school teachers from amongst his staff for carrying out the vision screening task because of his close proximity with his teachers. She/he alone understands their attitudes, motivation and interest in such a task. To ensure that the selected teacher is not against use of spectacles, a teacher wearing the spectacles should be given preference. If there is hesitation in use of spectacles by a particular gender due to prevailing customs in the society (e.g. in parts of rural India, girls using spectacles have lower consideration for marriage by grooms' and/or his family), a teacher belonging to female gender should be identified. The District Programme Manager (DPM) should write to the individual Headmasters/Principals for selecting a school teacher. A sample letter making such a request is given on the following page:

Sample letter from the District Programme Manager to the Headmasters to the schools

June 30, 1992

Subject: Vision screening of the school children

Dear Ms /Mr

You will be happy to learn that a programme to examine the eyesight of the school children has been prepared. The programme includes examination of the children by a trained teacher of their own school and referral of those suspected to have poor vision to the Ophthalmic Assistant at the Primary Health Centre, for further examination. Spectacles to the needy children will be arranged by the District Blindness Control Society through the private opticians.

It has been decided to train one teacher from each of the schools in the district. The training for the teachers from the school in block is proposed to be held on..... (date) at(place).

You are requested to nominate one of the teachers from your school for this programme and depute him/her for this training. The relevant cards/materials to be used in the programme will be provided to the teacher during the training. While nominating the teacher, the following criteria may be adopted.

1. Preference should be given to a teacher already using spectacles
2. Female teacher, if available, should be nominated
3. The teacher should be voluntarily willing to undertake the task

The name of the selected teacher should reach by..... (date)

It is proposed to complete the screening of all children in all the schools by September, 92

With regards,

Yours sincerely,
District Programme Manager

The Headmaster,
All schools in the district

E. Conduct the Training

The following arrangements are required before conducting the training programme for the school teachers. It may be remembered that the training of the teachers is one of the crucial inputs in the programme and, therefore, it should get adequate attention while making all the arrangements.

Training Coordinator: To give due emphasis to the training, the district programme manager should himself/herself be the training coordinator. If there are many schools in the district/area, it may be necessary to organize simultaneous training programmes at different venues. In such case, the local education officer in charge of schools or the ophthalmic assistant may be the training coordinator. The coordinator should be conversant with the training contents and the methodology.

Venue: The training should be conducted at a school easily approachable by the teachers from the schools in the area. The training in the school allows for practical Learning by all the teachers on the school children in the afternoon, which may otherwise be logistically cumbersome if the venue of the training is a place other than a school. The training should be planned on a school working day.

Duration: One day training starting at a convenient hour in the morning is required. The proposed total duration is about 8 hours – 4 hours of classroom teaching in the morning and 4 hours of practical training in the afternoon.

Trainees: The numbers of trainees per training session should be 20 to 30. If there are more schools or trainees in the district/area, multiple training programmes may be required.

Training Team: This is drawn from the local doctors, ophthalmic assistants, school teachers already trained before and faculty from a training school for health workers. For every 7 – 8 school teachers, there should be one trainer i.e. 4 trainers for a group of 25 – 30 trainees. It is essential that the trainers should have gone through the training programme themselves in the past. Make sure that the trainers do not get into the unnecessary details or give long technical lectures to the trainees. The contents of this module, along with the slide set and the video will meet the entire requirements of the training programme for the teachers.

Training Facilities: The facilities should include adequate sitting arrangement, a blackboard, slide projector & a screen and TV – VCD (if video is planned to be shown). It is likely that some training sites will not have electricity. In such situations, it is desired that the programme officer organises charts and posters to fill up for the absence of slides and video. A generator should not be used during a training programme as the noise created by it diverts the attention of the trainees.

Training materials: These consist of:

1. Screening card for use by the teacher (yellow)

2. Referral card to be provided to the children suspected to have poor eyesight (blue)
3. A measuring rope/tape of 20 feet length
4. Recording format for use by the teacher in the school

The samples of the two cards are given in the pouch inside the back cover of the module. In addition the following materials can be found in the pouch:

1. Vision game card for use by the school children
2. Question-answer folder for the school teacher

The materials described above form the screening kit for the teachers. In addition, the following training aids are available on request for use during the training programme:

1. Video for describing the screening programme procedures
2. Slide set describing the tasks of the school teacher
3. Role plays and enactment (hands-on-training) of all activities by the teachers

A brief description of these materials is given below:

1. **Screening Card** (yellow) – This shows the procedure to conduct the screening in the school and has simplified E chart with 4 "E"s, conforming to only one cut off point of 6/12 of the standard Snellen's chart. The entire Snellen's chart is not required as a school teacher is expected to identify the children with poor eyesight and not to what degree the vision is poor. The procedure described acts as a simple ready reckoner for the teacher. Comparison of the card with the standard Snellen's Chart has shown that this card is equally effective, easy to follow by the teacher, allows for faster screening and avoids unnecessary details thus reducing confusion. Any temptation to use the full Snellen's chart by the teacher must be avoided. To increase the durability of this card, it can be placed inside a transparent plastic folder.

2. **Referral Card** (Blue) – This is to be issued to the children suspected to have poor vision during the screening by the teacher. This card ensures the child an appointment with the ophthalmic assistant for detailed examination and refraction, if necessary. This card also becomes the tool for the student for receiving a pair of spectacles, if advised by the ophthalmic assistant, from an authorized optician.

3. **Recording form** – This is given on the following page. This is the form to be kept by the school teacher for each class/ section of the school. This is to keep record of the children referred to the ophthalmic assistant only. It allows the teacher to keep track of the children's compliance i.e. examination by the ophthalmic assistant, receipt of spectacles from the optician and their use. Because of the daily proximity of the teacher with his students, he is the most appropriate person to monitor all the steps.

The two cards, the recording form and the measuring tape (6 meters) form the essential contents of the screening kit.

The Question-Answer folder is for general information on the Vision screening and provides answers and clarifications to the usual questions from other teacher and students.

The vision game card is suggested for use in areas where there are large numbers of children outside

the schools who cannot be reached through the school eye screening programme. This card is for use by the school children. Before deciding to use this card as part of the vision screening programme, two factors need to be borne in mind:

1. High costs as this card has to be given to all the school children
2. Mechanism of providing refraction services and spectacles to the children identified by the school children through the vision game card – how can refraction and spectacles for the needy children be provided? Only when it is possible, you may decide to use the vision game card.



6/12 E Optotype



School Vision Screening Kit

RECORD OF SCHOOL CHILDREN WITH POOR VISION

DISTRICT

SCHOOL

BLOCK/TALUKA

CLASS/SECTION

S. No.	Name of the Student (Roll No.)	Address	Examm. By Oph Asst (Y/N)	Spectacles			
				Adv. (Y/N)	Recd. (Y/N)	Free (Y/N)	Used (Y/N)

Total number of children in Class/ Section _____

Number of children screened for Vision testing _____

Number of referrals _____

Date

School teacher

Training Programme:

30 minutes	-	Introduction
30 minutes	-	Refractive errors in school children (Use Chapter 2 of this module)
30 minutes	-	Vision screening programme (Use video, if available)
1 hours & 30 minutes	-	Screening materials (Use individual cards & forms)
1 hour	-	Tasks of the school teacher (Use slide set)
Lunch Break		
2 hours & 30 minutes	-	Practical experience in small groups (Each group with 1 trainer and 7-8 trainees)
1 hour	-	Question-answers session
30 minutes	-	Distribution of the screening kits to individual teachers (May also be given earlier in the morning while explaining the individual cards and formals) individual problems

This is an indicative recommended programme. Local adjustments may be required.

The Slide Set:

The slide set explains the screening process and emphasises the tasks of the school teacher after being trained. It is available on request.

It consists of the following slides:

1. Title
2. Explain the programme to the Headmaster & decide the dates for the screening
3. Announce the dates for the screening for each class/ section of the school
4. Screening the children – check the names of the students from the attendance register
5. Screening - Make the children sit in a row according to their class roll numbers. This will facilitate screening of all the children present in the class
6. Screening - Explain the process to the children
7. Screening - Measure 6 meters distance and mark the two points
8. Screening - Call the first student. Ask him to cover one eye. Test it. Repeat it for the other eye after covering the first eye
9. Screening - If eyesight is normal, tell the child and send him back to the class
10. Screening - If eyesight is not good, fill up the referral card and give it to the child with the instructions on where and when to go for refraction. Also make an entry in the record form
11. Screening - Continue the process till all the children of the class are screened
12. Examination by ophthalmic assistant - Ask the children who were referred, whether they have gone to the Ophthalmic assistant for detailed examination
13. Provision of spectacles - Enquire from the children who have been advised spectacles, whether they have gone to the optician or not. If yes, make the entry in the record form. If not, ask them to do so
14. Use of spectacles - Observe whether the children who have been given spectacles, are using them
15. Reporting - At the end of the entire programme during the year, prepare a small report. Pass it to the district programme manager through the Headmaster

Some tips for a Training Programme:

Treat every training programme with caution. Just one poorly conducted training programme will mean about 25 schools unable to carry out the vision screening and over 5,000 children not examined properly.

- The emphasis will be on the “learner”. Many questions which may look basic for the trainers should be adequately answered.
- Each session should have the last one third part of the time for providing clarifications.
- Each session must be completed within the prescribed time frame. This will give adequate time for practical training in the post lunch period.

In the practical training, each trainee should examine at least 10 children by himself. They should also practice filling up referral cards and the recording form.

The language should be local. All materials to be used and provided should also be in the same language.

List of the important officers in the district should be provided to all the trainees. They should also be introduced to the ophthalmic assistant of their area and informed about when and where to refer the children.

Organising one day programme avoids arrangements like accommodation, transport and per diem for the participants

Screening Kit:

As mentioned in the programme, each trainee should receive the screening kit before the end of the day. This will save on operation complexities about their distribution at a later date. The kit for each school will consist of:

1. Screening cards (Yellow) - 2
2. Ocluder - 1
3. Referral cards (blue) - 10% of the total no. of children in the school
4. Measuring tape/ rope (6 meters) – 1
5. Question-answer folder (optional) - 10
6. Vision game card (optional) - number equalling number of school children
7. Record register/ Form

Add 10% extra for items 3 & 6 to take care of the additional demands and wastage.
The entire kit can be put in a bag which may carry the logo of the vision screening programme.

Training protocol:

Curriculum : As discussed above

Age to be included : 9-14 years (5th grade and onwards)

Method : Tumbling E optotype (size 6/12) to be read at distance of 6 meters (20 feet).
Chart shown 4 times and at least 3 correct out of 4 showing should be considered passing the vision test. As described above

Duration of training : 1 day: 25-30 teachers trained at one time. They would be provided with screening kit.

Frequency of retraining can be decided based upon more false positive referrals.

**Do not conduct a training programme
Unless the materials for distribution are ready**

F. Conduct the Screening

The screening programme consists of three major activities which can go on simultaneously:

1. Preliminary screening in the schools
2. Examination (including refraction) by ophthalmic assistant
3. Provision of spectacles by optician

Preliminary screening in the schools

The screening in the schools by the teacher should be initiated within two weeks after receiving the training. Longer interval will make the teacher forget the skills acquired and lack of interest in the programme. Depending on the local situation, the screening can be done in two ways:

1. Students from one class/section are screened sequentially each day or one day a week till all the classes/sections are completed.
2. All the students in the school are screened in a single day. Absentees may be covered on a repeat day later on.

The attendance register of the students is an easily available tool to monitor screening of all or most of the children in each class/section. It should be possible to achieve an almost 100% coverage of school children because of the close proximity and the command of the school teachers over their pupils. To carry out the screening in the schools, the following steps will be required:

Step 1: Fix a time table and announce it at the assembly/prayer or through the notice board.

Step 2: Arrange for a place for screening - this can either be a class room of at least 22 feet length, school corridor or just an open ground. The place selected should not be dark. The children from the class should sit at a place other than this site to avoid prompting of the child being tested/ memorizing of chart by the students.

Step 3: Carry out the screening, preferably in the sequence as in the attendance register to ensure discipline and complete coverage. The children screened as having good eyesight return to their class room and a tick mark is put against their names in the attendance register. The children with poor eyesight in either or both eyes receive a referral card and an entry is made in the recording form before they return to their class. Therefore, all the screened children are marked in the attendance register and all the children with poor vision i.e. ones given the referral cards, are noted in the recording form.

Step 4: If a child is already using spectacles, the vision should be tested with the spectacles. If the eyesight is detected as poor with the spectacles worn by the child, the child is referred to the ophthalmic assistant or his own doctor. If the child can see well with his spectacles, no referral or further action is required (put in remarks)- put a tick and no referral.

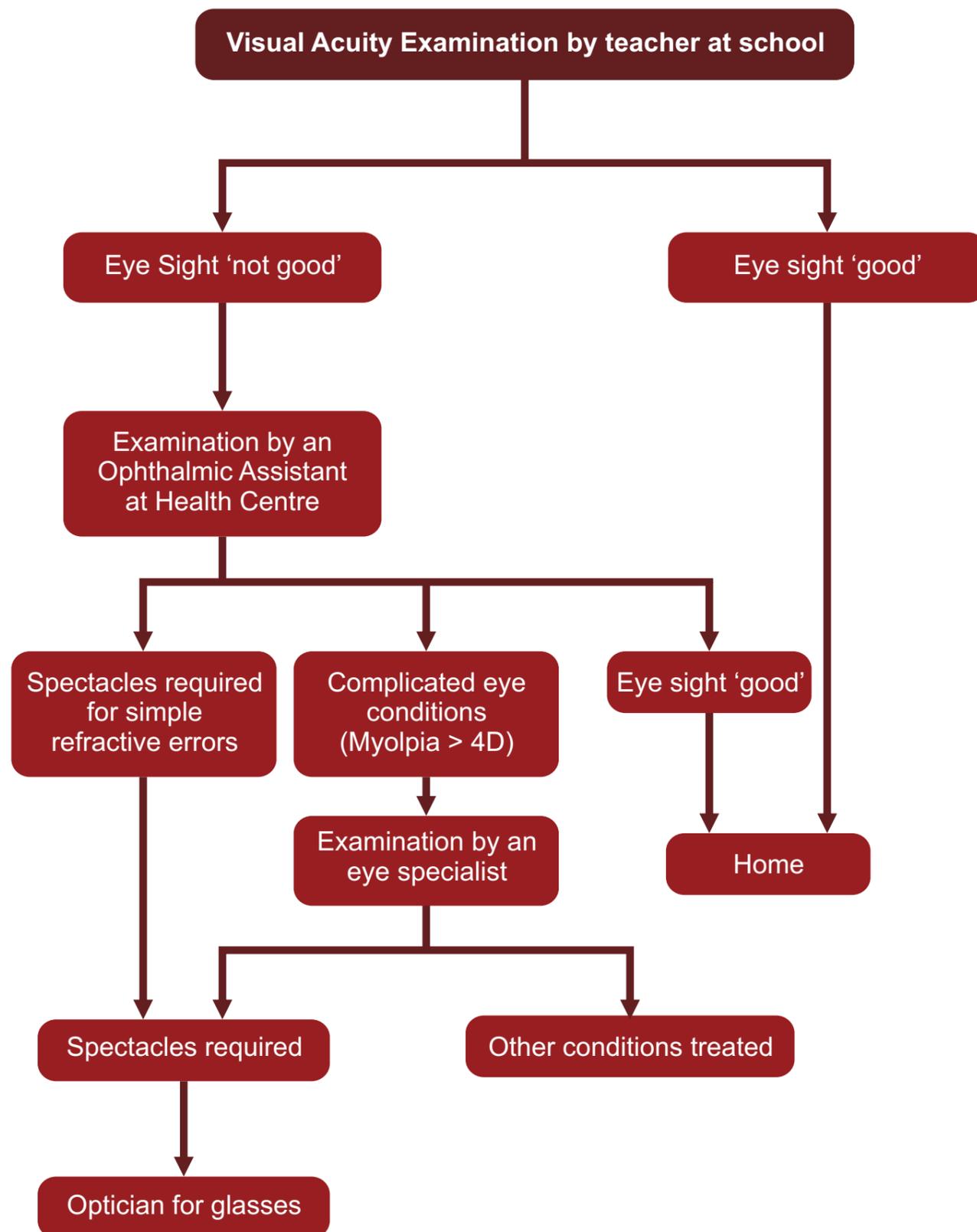
Step 5: If the child-to-child approach is to be incorporated in the program, the vision game cards are distributed to all the children after explaining to them in the class or at the school assembly. Practical sessions for the children are essential to adequately explain the process.

Step 6: After the screening is completed in the school, it is emphasized again (at the assembly/prayer or by the class teachers) that the children who have been issued referral cards must go to the Ophthalmic Assistant as soon as possible. Information about the place and time must be provided & follow up after 2 weeks of prescription of all referred children.

Follow up after 6 months for compliance and vision testing & repeat refraction of all referred children & those wearing spectacles previously.



Flow Chart for Screening Programme



Examination by the Ophthalmic Assistant

It is worthwhile to fix one or two days in a week by the ophthalmic assistant for examination of the referred school children only. If more than one health centres are to be visited by the ophthalmic assistant, a weekly schedule needs to be prepared. Such arrangements should be specified in the referral card for the children to provide information for the parents and make them confident about where and when to go to the ophthalmic assistant for examination. Barring exceptional circumstances, the ophthalmic assistant should not visit the individual schools for refraction. The set up at a regular centre is more conducive for doing correct examination and assessment. Make sure that the arrangements for refraction are made before starting the teachers' training programme, and the time table of the ophthalmic assistant is made known to all the teachers and Principal of the school.

The ophthalmic assistant should do a visual acuity testing for each child referred and complete refraction, if required. To enable him do this he should be sufficiently equipped (mentioned in the chapter 4-B). If the child requires spectacles, he should specify the power of spectacles and inform the accompanying parent/guardian about the addresses of the ophthalmic from where the spectacles can be received. Education about PMT and effect about dilatation of pupils need to be explained. Sufficient time should be devoted to provide explanation to the parents and avoid any confusion in their mind. Minor optical corrections, which are more of cosmetic nature, should be avoided-the child gain very little but may have unnecessary emotional burden. Complicated cases like amblyopia, squint, corneal opacities and astigmatism may be referred to an eye specialist at the district hospital or an eye hospital in the nearest town (schedule and who to approach should be known beforehand. eye specialist to be informed and specific day may be kept for referred children from different schools). Experience has shown that this referral to an eye specialist is required in only 1 out of 20 children referred by the school teachers.



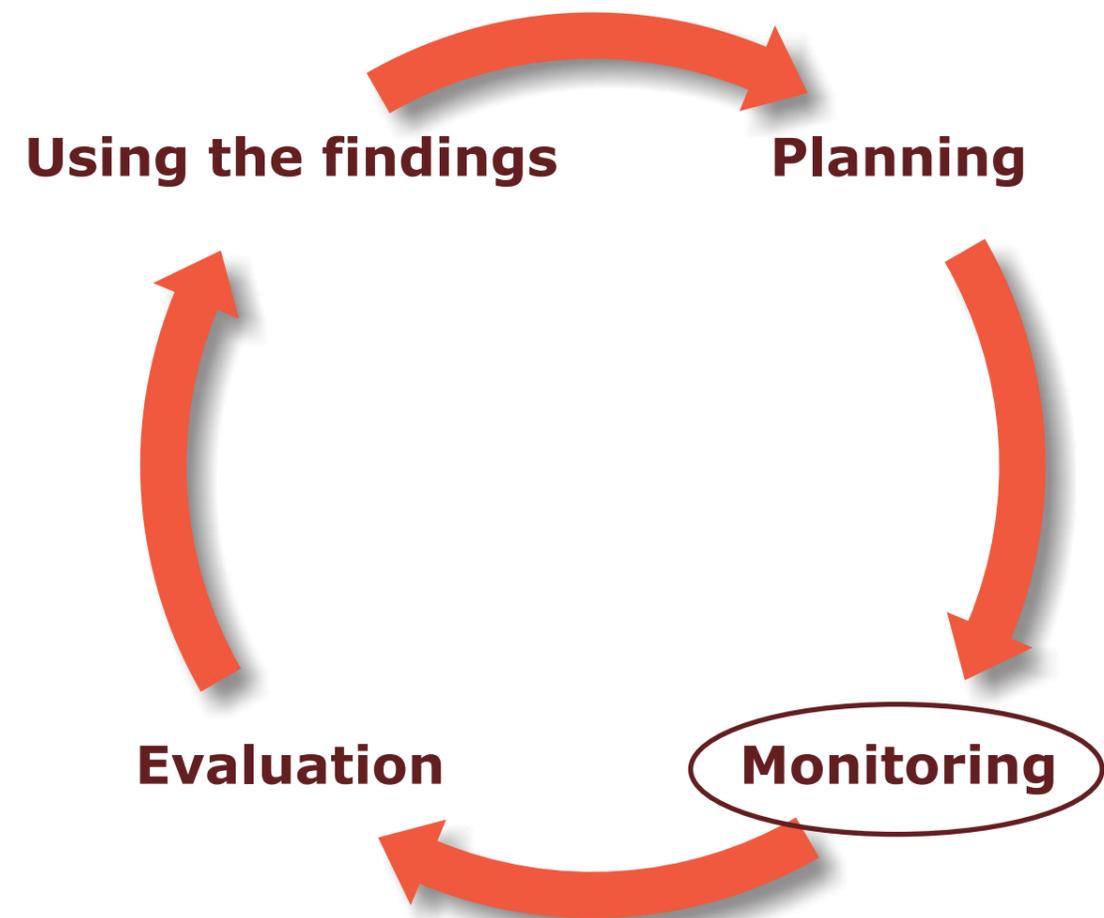
Provision of Spectacles

This is the last step in the vision screening programme. This progresses concurrently with the screening in the schools and examination by the ophthalmic assistant. The opticians follow the arrangement agreed with the local programme manager – to supply the spectacles free against the prescriptions received from the ophthalmic assistants or provide them at the prescribed rates. Sufficient stocks of frames are to be kept by the Opticians to ensure timely supply. To give a boost to the authorized opticians the programme manager may advertise their outlets locally. Simultaneous, arrangements with more than one optician introduce competition for quality and service. It also generates more interest in the program.

If the arrangement made is for supplying the spectacles free of charge, the payment can be made at regular intervals, say monthly interval.

The total number of paid spectacles serves as a good indicator of assessing how well the programme is progressing. Random spot checks by the programme manager or an ophthalmologist are also necessary to ensure quality in the supply of spectacles.

G. Monitoring the Progress



While undertaking a journey you like to monitor how well you are progressing by looking at the milestones for the distance covered and the time. Similarly you will like to observe how well the vision screening programme is progressing in your district/area. For doing this the personnel involved must keep updated information in the format given, at the end of this chapter. This data can be compiled from the information received from the schools (record forms), the ophthalmic assistants and the opticians.

The report form has been designed in such a way that it allows the district programme manager to monitor the performance and to identify possible constrains in the implementation if the programme. The Report Form can be used block wise (by each ophthalmic assistant) as well as district wise.

Following is the explanation of the different items in the monitoring form.

The first three lines are self-explanatory.

Total Number : By comparing the existing number of schools, teachers and students in a block or a district (first column) with the number covered, you can analyse whether the programme has adequately covered all the schools and what percentage of the children were examined under the programme.

Below this are **the numbers of students suspected by the teachers to have poor eyesight.**

Normally, this figure is in the range of 5-10% of the number of students examined. If it is higher, you may suspect an over-ambitious teacher. If it is lower, the procedure followed by the teachers may be wrong eg., the card is not turned, so children who cannot really see the 'E' have memorized the sequence of the directions to point at; the teacher allowed the child to squeeze the eyes, or not cover the other eye adequately; when the children are not seen individually but in a row, other children whisper the answer. So, if the percentage of students referred is outside the 5-10%, check the procedure at the school. It should be remembered that only new cases are reported-those children already having spectacles are not to be included in the screening, unless they have poor vision with the existing spectacles.

Students examined by ophthalmic assistant: Ideally, this figure should be the same as the number of students suspected with poor vision. Practically, only if the number of students examined by ophthalmic assistant is less than 80% of the students referred; try to find out why the drop-out is so high. This figure may tell you something about the availability of the refraction facility and the quality of the referral system. It may have to do with the availability of the ophthalmic assistant, or some parents and children who do not feel the need to be examined, or girls who may not like to wear spectacles. There is a possibility that some parents take their children to an ophthalmic or an ophthalmologist directly as well. There is no objection to this but it is important in the evaluation of your programme.

Out of the students examined by the Ophthalmic Assistants, how many had spectacles prescribed?

This will give an idea about the true positive (children with refractive errors) and false positives (students suspected of poor vision, but found normal after examination by ophthalmic assistant). In district with high rate of false positives, it may be necessary to review the training procedure, or to arrange for refresher training and follow up. Keep the motivation alive-no negative feedback-only positive reinforcement.

From all the children examined by the Ophthalmic Assistant, how many need to be seen by the Ophthalmic Surgeon?

This is dependent upon the skills and initiative of the ophthalmic assistant. If the number of children referred to the ophthalmic assistant may lack the confidence to prescribe spectacles. Here, there is a good scope to reduce this figure through refresher training of the ophthalmic assistant.

Do the children go to the optician for spectacles?

Some parents choose their own optician or may even go for paid spectacles. If this figure is low, check the entire procedure of provision of spectacles by the optician. There may be another optician available nearby. Check the quality of the spectacles and the services provided by him.

At the bottom of the monitoring form **power of the spectacles prescribed is recorded.** If most of the spectacles are stronger than 1 Diopter (Plus or Minus), it would mean that the screening process is not sensitive enough to detect light refractive errors. Experience has shown that the number of myopic children far exceeds the number of children requiring hypermetropic corrections. It has to be emphasized that teachers only screen for distant vision and not for near vision.

A careful perusal of the monitoring format should allow for monitoring the entire process and identification of the problem, if any, during the screening programme.

SCHOOL EYE SCREENING - REPORT

District : _____

Block : _____

School : _____

	Total number	Covered	Remaining
No. of Schools :	<input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/>
No. of Teachers :	<input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/>
No. of Students :	<input type="text"/>	<input type="text"/>	<input type="text"/>

No. of students suspected with poor vision by teacher

1)

No. of students examined by Ophthalmic Assistant

2)

Drop-out

(1-2)

No. of students prescribed spectacles

3)

No. of students referred to eye surgeon

4)

False positives

(2-3-4)

No. of spectacles provided by optician

5)

Drop-out

(3-5)

No. of children wearing spectacles in school

6)

Non-compliance

(5-6)

Power of spectacles prescribed

(give only spherical corrections / spherical equivalent of cylindrical value)

	<+1	+1 - +2	+2 - +3	+3 - +4	+4 - +5	+5 - <+6	>+6
Right Eye	<input type="text"/>						
Left Eye	<input type="text"/>						

	<-1	-1 - -2	-2 - -3	-3 - -4	-4 - -5	-5 - <-6	>-6
Right Eye	<input type="text"/>						
Left Eye	<input type="text"/>						

5

Evaluate the Programme



Throughout this manual, vision screening in school children has been compared to making a journey. Evaluation is the analysis of a programme or an activity after its completion. This will mean assessing the programme vis-a-vis its objectives. Evaluating the Vision screening programme will address the following 9 questions:

1. Have all or most of the children been covered?
2. How well the materials for screening have been received?
3. Has the referral system worked in the way it was planned?
4. What about the screening test – is it adequate, too soft or too hard?
5. What makes the school teachers do this work?

6. Is there any opportunity of linking up the vision screening programme with other activity in the schools?
7. Supply of spectacles by the Optician – how well the system has worked?
8. What are the costs and on what items? Is it possible to reduce or share these costs?
9. Is it possible to utilise the school children in screening the children not attending the schools?

Coverage: Two types of indicators can evaluate this:

1. Percentage of school children – of schools, of school children
2. Number of spectacles provided

Screening materials: These can be assessed by interviewing the teachers.

The aim should be to find out about:

1. Clarity about the procedures prescribed
2. Uniformity amongst the teachers in understanding about the procedures

Referral system: A careful perusal of the monitoring forms (described in the previous chapter) would reveal whether the system worked smoothly or not.

Screening test: The reasons for over-referrals or under-referrals (outside 5 to 10 per cent) will have to be investigated. In most cases it may be possible to detect the underlying reason and solve this. However, in some cases, it may even be required to modify the screening criteria-make it 6/12 in case of over-referrals, or make it 6/6 in case of under-referrals. This will mean a change in the size of the 'E' on the reserve of the Screening card (yellow). This will be rarely required.

Motivation with other activities: School entry, passing out and regular health check-ups may exist in some of the schools. These are good opportunities to link up the vision screening in the schools. It helps in attaining sustainability in the vision screening programme. Ultimately the school eye screening should become an activity in every school.

Supply of spectacles: This can be assessed based on the spot checks by the programme manager and feedback received from the teachers & the parents. Future extension of the contract of the opticians will depend on the quality of services provided by him during the preceding year.

Cost incurred: The major items incurring expenditure are spectacles, screening materials, training and monitoring/supervision. If the parents can afford and are willing to pay, the costs on the spectacles can be shared between the consumers and the programme in subsequent years. If the parents can't pay for the spectacles, supply should continue through government funds, donors or philanthropists. Experience from 4 districts in India has shown that the unit costs for screening a child is less than a rupee (4 cents), and that of treating a child with a pair of spectacles with Acetate frame and White English lenses (including warranty) is ₹ 60 (\$2.5). A quarter of the parents like to pay for the spectacles and they look for better and costlier quality.

Children outside the schools: In the areas where the school children have been provided with the child cards, it should be assessed how many children from the schools have been examined by the ophthalmic assistants.

Steps in the evaluation

Evaluation will consist of the following 5 steps:

1. Decide what to evaluate. Put down the questions you are seeking to answer.
2. Identify the data needed to evaluate the programme and the data sources
3. Collect the data
4. Interpret the evaluation results
5. Take relevant strategic decisions for the programme

What are the indicators of evaluation (short term and long term) in rural area?

Key indicators:

Quantitative

- No. of schools screened
- No. of children screened
- No. of children refracted
- No. of children prescribed spectacles
- No. of children dispensed spectacles
- No. of children referred
- Ratio (male:female student)

Qualitative

- Number/proportion of children issued spectacles who wear them regularly.
- Number/proportion of children wearing spectacles whose vision has improved.

6

Delivery of Services and Recommendations

Delivery of services

Steps for delivery of services:

1. Situation analysis
2. Program planning
3. Flow chart of activity
 - a. Select a focal person who could be a paramedical ophthalmic assistant (PMOA), refractionist, optometrist, ophthalmologist in each district to coordinate the school eye health programme
 - b. Identify and train the teachers
 - c. Select the target population by grade or level
 - d. VA should be checked and recorded at the agreed grade/ class.
 - e. Focal person should choose the schools and make appointments with principals and teachers to explain the programme.
4. Visual acuity screening
5. Refraction
6. Prescription

Low power spectacles should not be provided, as they are unnecessary and will not be worn. This is a waste of resources and the programme is open to exploitation through unwanted prescribing. The following are recommended minimum refractive errors that should be corrected:

- **Myopia:** equal to, or greater than **-0.75.0D** Spherical.
- **Hypermetropia:** equal to, or greater than **+2.0D** Spherical
- **Astigmatism:** equal to or greater than **0.75D** Cylinder.

7. Referral to appropriate services
8. Provision of spectacles (Variety of frames should be available)
Children should differentiate their frames by different colours or marks to avoid sharing or

exchanging spectacles among themselves which is harmful.

9. Record keeping
10. Follow up procedures-
 1. One year follow up for the students who got spectacles
 2. Maintain contact with the key stakeholders until the students has received the needed examination and necessary care.

Primary stake holders:

1. Community, particularly parents.
2. Providers from public, private, and non-profit sectors
3. School management and volunteers

Linkages:

Cross-cutting linkages

1. Horizontal and Vertical linkages
2. Regular meetings

Enhance linkages

1. Vertically – between primary, secondary and tertiary eye care
2. Horizontally – with health care, education, community, and private sector

Important points:

- Agreed grades: 5th class onwards (Age 9-14 years). The advantage particularly in urban areas, is that in primary schools enrolment is 90% and those children that are not covered in higher classes due to low enrolment can be covered. This might also help reduce drop outs due to expected better performance with spectacles.
- There is no need of primary screening in rural areas but in urban areas where prevalence is more than 5% in 4th or 5th class. There is no need to screen school dropouts if we screen higher classes in primary schools.
- Prescribing small degrees of refractive errors is unnecessary and will not be worn, so the above mentioned agreed cut off can be used.
- Variety of spectacles in the form of colours and marks should be made available to avoid sharing the spectacles among students which is harmful.
- To ensure quality retraining would be necessary when referrals are outside 5-10% range. Guiding children in proper care and maintenance of spectacles would also help in increasing the durability of the spectacles.
- Role of mobile teachers (itinerant teachers) and Community Based Rehabilitation (CBR) programme.

Scopes and components of services

1. Related with vision problems and its solutions-
 - a) Identification of cases for referral - Identification of children with significant refractive errors, with provision of high quality spectacles that look good and which are comfortable, durable and affordable.

- b) Motivation for referral
 - c) Treatment and follow-up
 - d) Academic growth after treatment
2. Motivation and commitment by teachers
 - a) Identification of common eye complaints e.g. red eyes, styes, conjunctivitis, squint,
 - b) White pupil, nystagmus, abnormal head or face turn, red eye, inability to copy from blackboard and, other gross eye abnormalities.
 - c) Monitoring of treatment like –use of spectacles, LVAs
 - d) Monitoring of academic performance
 3. Health education and awareness by social workers
 4. Child to child approach to take eye health messages home, and to use children as “case-detectors” of individuals in families or community who need eye services.
 5. Other points-
 - a) Identification of children with significant refractive errors, with provision of high quality spectacles that look good and which are comfortable, durable and affordable.
 - b) Color vision chart can be provided to each school and teachers can be trained to screen for colour blindness as job seekers come to know very late that they cannot be selected for certain jobs like railways, police, marine etc. Children with colour blindness may select their career accordingly without getting disappointed later.
 - c) Health education or other activities to prevent or treat locally endemic diseases e.g. face washing and the importance of a clean environment at home to prevent trachoma.
 - d) Provision of presbyopic correction for teachers, if required and encouraging 40+ age group people to use the same.
 - e) Promoting healthy school environment e.g. growing vitamin A rich foods in a school garden; water collection for face washing.
 - f) Identification and referral of common eye complaints of children (e.g. styes; conjunctivitis).
 - g) Using the child-to-child approach to take eye health messages home and to use children as “case detectors” of individuals in their families or community who need eye services.

7

Health Education

Health education to children and parents is vital component in school vision screening programme. As children spend most of their time with their parents, integration of eye health education into screening programs will be useful in long run. Children as well as parents will become ambassadors for imparting eye health education to their community.

Health education should include following points

1. The children and parents should learn about refractive errors and the importance of wearing eyeglasses as a corrective measure. Detecting refractive errors and prescribing glasses are not effective unless children receive and actually wear glasses with the correct prescription. Emphasize a 'whole family approach.' This will ensure that parents are involved and understand the importance of eyeglasses and continued follow-up care. Increase in refractive error education will highlight the importance of eye health and address cultural barriers to wearing glasses.
2. Awareness regarding activities to prevent or treat locally endemic diseases e.g. face washing and the importance of a clean environment at home to prevent trachoma.
3. Provision of presbyopic correction for teachers, if required and encouraging 40+ age group people to use the same.
4. Promoting healthy school environment e.g. growing vitamin A rich foods in a school garden; water collection for face washing.
5. Identification and referral of common eye complaints of children (e.g. styes; conjunctivitis).
6. Identification of common eye complaints of children e.g. squint, white pupil, nystagmus, abnormal head or face turn, red eye, inability to copy from blackboard and other gross eye abnormalities.

We can avoid eye problems just by following some good habit in our day-to-day work

- Vitamin A deficiency can be prevented by consuming a balanced diet.
- Vitamin A supplement starting from 9 months to 3 years of age at 6 monthly intervals and enough

spacing between two pregnancies can avoid vitamin deficiency. (Vitamin A is freely available at government hospitals.)

- Keep sharp objects out of reach of children. Do not allow children to play with *gulli-danda*, bow-arrow, water filled balloons. Ask them not to throw colours on others during festivals. Be cautious while playing fire-crackers in presence of children.
- Instruct people not to view sunlight or eclipse directly otherwise retina of their eyes might get damaged.
- People who are working in arc-welding, lathe machine and sand blasting should be instructed to use protective glasses so that their corneas do not get injured.
- Take precaution while working in laboratory or with chemicals.
- If some foreign body (e.g. sand, dust, dirt etc.) falls in the eye, eyes should be slashed with water and immediately consult an ophthalmologist (eye specialist)

General care of eye

- Do not read in dim light.
- Do not read in lying position. Read books keeping them at a distance of at least 1 foot.
- Do not read with light falling on your eyes. Read with lights coming from sides or from behind the reader falling on the book.
- Watch television sitting at a distance of 10 feet away from the television.
- Keep lights on while watching television.
- Do not read continuously for more than half an hour. Five minutes rest is soothing to eyes.
- Consult eye specialist immediately if eyes are red, painful or if there is dimness in vision.

Do not use any medicines in the eye without consulting an eye specialist

- If there is discharge in the eyes of a child, wipe that out with cotton soaked in water previously boiled and cooled down. Use separate cotton for each eye.
- Never forget to apply the cap or lid on the bottle after any eye drop is used.
- Do not touch the tip or nozzle of the bottle.
- Do not use any eye drop which has been opened for over a month.
- Everyone should try to read letters at a distance 6 meter away and if one cannot then they should see an eye specialist to get their eyes checked for refractive errors or any other abnormality.

Care of spectacles (Glasses)

- Keep spectacles in cover or case after their use.
- Keep spectacles on table with their glasses facing upward so that they do not get scratches.
- Clean spectacles with clean, non-sticky cloth every day.
- Do not use spectacles of other family members or neighbours.

- People 40 years and above should undergo glaucoma check up every year
- People using spectacles must undergo eye checkup to detect changes in numbers

- Children reading with books close to their eyes should get their numbers checked.
- Do not use home-made remedies like honey, milk, lemon juice or any juice of vegetative origin into the eye.
- Do not allow any eye drops that you are using to be used by another person.



8

Miscellaneous Problems

1. Can the programme be taken up if there are no ophthalmic assistants in the area?

There are four key functionaries in the screening programme:

- School teacher – Initial screening
- Ophthalmic assistant – Examination and refraction
- Ophthalmologist – Examination of the complicated cases
- Optician – Supply of spectacles

The chain is broken if an ophthalmic assistant is not there. It should be explored if alternative resources eg. general doctor or health worker can be trained in refraction and prescription of spectacles. In some areas, it may be possible even to train the optician in refraction and utilize their services. However, if neither is possible, the programme should not be undertaken at all.

Scopes- Community health workers (preferably medical social workers, optometry students can be of help where possible.

2. Can the programme be taken up if there is no ophthalmologist in the area?

Yes. The experience has shown that over 90% of the children with refractive errors can be prescribed proper spectacles by an ophthalmic assistant. It's only the remaining 10% who require an examination by the ophthalmologist. So 90% of the referred children will still be provided the service.

3. What to do where school teachers are few in numbers and also overburdened with lot of government work?

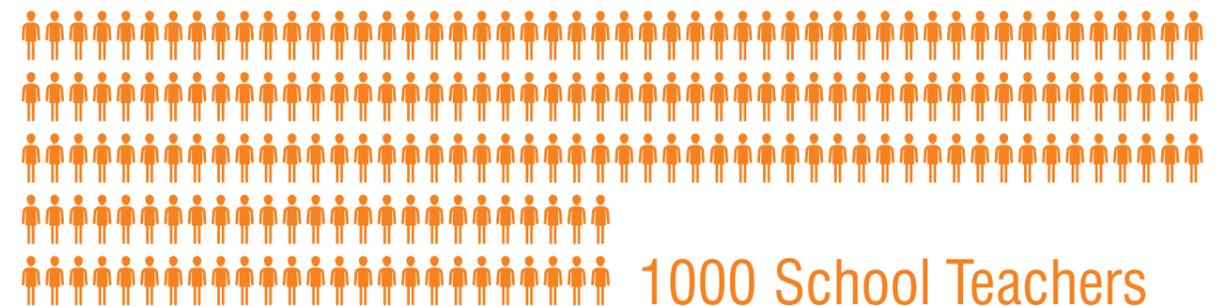
We can think of community health workers instead of teachers. This may include- ASHA workers, Health worker male and female (ANM), medical social workers or even optometry students where possible. Anganwadi workers should be avoided as they are responsible for the care of children below 6 years of age.

4. What if there are many Ophthalmic Assistants present in an area, should the school teachers still screen all the children?

Yes, school teachers should still be involved in the programme. Besides, the advantages of incorporating the school teachers in the programme, as mentioned in chapter 2 of the module, the proposed strategy greatly reduces and rationalizes the workload for the ophthalmic assistant and the ophthalmic surgeons.

 5 Ophthalmologists

 50 Ophthalmic Assistants

 1000 School Teachers

Do not start vision screening programme unless refraction facilities and supply of spectacles are ensured

5. If there are many drop outs amongst the children referred by the teachers, what are the alternative solutions?

There are possibly three reasons for this:

- a. Information about examination by ophthalmic assistant is not adequately given by the teacher – this can be solved by conducting reorientation of the teachers. Absence of an ophthalmic assistant at the appointed time must be brought to the attention of the programme manager.
- b. In case of obstacles like inability to travel to place of examination, the school can arrange a group visit to the health centre along with the teacher on a date pre-decided with the ophthalmic assistants. (Arrange in the school or a location nearby.)
- c. Lack of motivation as the parents may not feel the need - counselling sessions can be arranged by the Headmaster with the parents of such children. Individual cases wherein a child with spectacles has performed well in the examination can become the basis of the counselling. The aim should be to cover 'most' and 'all' children as there are always hardliners in the community.

6. A programme manager wants to do vision screening amongst the weavers and tailors. Can this module be used for these groups?

The primary target group of this module is the school children. The principles, however, remain same if Vision screening programme is proposed to be taken up in any group:

- Identify the primary screeners
- Arrange for refraction facilities
- Arrange for provision of spectacles
- Train the screeners
- Conduct the screening programme
- Monitor and evaluate the programme

It should be possible to utilize this module for a Vision screening programme in any group if these principles are followed. The methodology to be followed will remain the same. E chart will vary. Near vision chart will be needed. Bifocal spectacles will be needed.

7. If a programme officer wants to undertake the vision screening programme, whom should he approach for resource materials?

Copies of this module can be procured from the address given on the back cover. It can be freely photocopied provided no changes are made in the text and the source is cited.

Slide set and video for the training programme are available on request from the same address. Screening materials (screening card, referral card etc.) should be locally printed after adaptation and translation into the local language.

The authors request you to share your comments and experiences with this module after using it. This will help them in making modifications in the next edition.

9 Reporting Formats

RECORD OF SCHOOL CHILDREN WITH POOR VISION

DISTRICT
SCHOOL

BLOCK/TALUKA
CLASS/SECTION

S. No.	Name of the Student (Roll No.)	Address	Date	Age	Seen by OA Y/N	Right eye P/F	Left eye P/F	Referral Y/N	Wearing glasses Y/N	Follow up

Total number of children in Class/ Section _____

Number of children screened for Vision testing _____

Number of referrals _____

Date

School teacher

A. Referral sheet:

School screening programme- Referral form

The child has subnormal vision:

Name: _____

Age: _____

Name of the school: _____

Name of the teachers/class: _____

Name of parent: _____

Address: _____

Telephone number: _____

Date of school screening test: _____

Refer to: _____

Follow up: _____

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