



Regular Visual Screening: Necessary for a Country's Development Strategy?

**Examensarbete vid kurs i Arbetsmedicin för leg. optiker
ARB 27
Optikerförbundet/Linköpings Universitet
2006-2007**

of

John J. Godoy

Linköping 2007

Table of Contents:

ABSTRACT.....	3
1. INTRODUCTION.....	4
2. MATERIAL.....	5
3. METHOD.....	6
4. RESULTS.....	7
4.1 Post-Evaluation Questionnaire.....	8
5. DISCUSSION.....	9
6. RECOMMENDATIONS.....	10
7. REFERENCES.....	11
8. ACKNOWLEDGMENTS.....	12
9. APPENDIX.....	13

Abstract

The purpose of this study is two-fold: to see how important and useful regular visual screening of adults and youth can be to a developing country such as Kenya and to see if "Vision For All's (VFAs) Screening Manual", developed by the studies author, is easy to understand and implement by trained personal. It is hoped that many thousands may be screened and only those with possible eye problems be referred to an eye specialist such as an Optometrist or Ophthalmologist, in so doing, making the screening process more effective and far reaching.

Nineteen individuals volunteered to become "Screeners" to screen adults and children at the northwest Kenyan villages of Kamusinde, Hekima, Sirisia and Bungoma. After an intensive training process, the 19 chosen were able to screen 128 children and teenagers and 71 young adults (between the ages of 20-35) of a total of 473 Kenyans in four days.

The conclusion is that it is of outmost importance to provide regular visual screening, in particular among youths. In this particular study, only 35 of 199 children and young adults up to the age of 35 were referred for a more thorough exam by an eye specialist. Thanks to the screening process 84,4% of those under the age of 20 and 78,9% of the middle age men and women, did not need to be attended by an eye specialist. A lot of valuable time and costs were saved thanks to the preliminary visual screening.

The study concluded also that VFAs Screening Manual is quite easy to understand and implement. After a 30 minute introduction and explanation of the screening process, with special attention focused on pages 9-13 and 19-23, the screeners were working on their own.

In the future it is hoped that many will be trained as screeners, thousands more will be screened and those identified with possible vision anomalies, will be referred accordingly. By making more effective the visual health screening process, it is hoped that it will improve the persons possibilities to realize its' goals and aspirations.

Key words: Visual Screening, Screening Manual, Illiteracy, Vision For All (VFA).

1. Introduction

Good vision is a prerequisite to be able to learn to read and write, to study or drive a bus or truck, to sew or weave, to work in many fields. One could say that it is one of the indispensable prerequisites for a person or country to fully develop. Despite that, regular visual screening is seldom implemented in developing countries as far as the author knows.

The purpose of this study is two-fold: to see if regular visual screening can be an important complement to a developing country's visual health programs and to see how useful and easy it is to implement VFAs Screening Manual in a country like Kenya.

The study author, founder and president of the organization Vision For All*, has worked since 1992 as an optometrist both in Sweden and in developing countries. In the early years the primary function of VFA was to do simple eye examinations and provide good, used eyeglasses. With time and accumulated experience, new goals have been set and new challenges met. In some countries (e.g. Tanzania, Guatemala, Eritrea ...) a good relationship has developed with Ophthalmologist, and both eye professionals have worked side by side. In other countries (e.g. Argentina and some parts of Peru and Chile) the Ophthalmologists have opposed VFAs arrival (perhaps VFA has been seen as a threat to their established power and monopoly in doing eye exams and writing prescriptions) and would not allow VFA to work with the poor to whom no one else provided visual health services. Still in other countries, where the successful literacy campaign, "Yo, Sí Puedo!" ("Yes, I Can!") is being implemented (e.g. Nicaragua, Venezuela, Bolivia, Guatemala, and in some parts of Perú) VFA has worked actively in a small way by donating thousands of eyeglasses and sending optometrists and assistants when asked for. Finally in the final years, after experiencing in many countries that hundreds of young adults and children were examined but did not need eyeglasses, has led VFA to incorporate a screening process in their program. For the Swedish team, having made such a long and expensive trip, it has realized how important a regular visual screening could make more effective and cost-efficient its work. Such invaluable experience and with the hopes to improve the quality and quantity of the services provided, has led to the development of VFAs Screening Manual. A few countries (e.g. Kenya, Tanzania, Bolivia, Nicaragua) have shown interest in implementing the screening process as this study testifies. On June, 2007 a VFA brigade, composed of three optometrists and three assistants, will visit Bolivia and attend 400 families of native Amazonian populations from three ethnic groups: the Mojeños, the Yuracarés and the Tsimané. It is intended to train a total of 40 native health workers as screeners.

VFAs Screening Manual was implemented in Kenya thanks to the expressed desire from the Kenyan organization CREADIS (Community Research in Environment and Development Initiatives) and from the interest and financing of SV (Studieförbundet Vuxenskola).

* Vision For All (VFA) is a non-profit, volunteer organization that provides visual screening, eye examinations and good, used eyeglasses throughout the developing world. It also works to inspire people to an active solidarity engagement with the belief that a better world is possible. (For more information www.visionforall.org)

2. Material

473 persons participated in the study. 128 youth under the age of 20 (61 girls, 67 boys), 71 young adults between 20-35 years of age (34 women, 37 men) and 274 adults 36 years and older (111 women, 163 men). All lived in the villages of Kamusinde, Hekima, Sirisia and Bungoma in northwest Kenya and were willing to participate in the study.

Nineteen individuals volunteered to become “Screeners” to screen the villagers. The future screeners received a 30 minute intensive training course on how to do a visual screening. The literature used to prepare the screeners was VFAs Screening Manual (SM) (see Appendix 9.2 SM pp. 9-13, 19-23).

The following material was provided to the 19 screeners.

1. Selected pages from VFAs SM (pp. 9-13, 19-23.)
 - 1.1 A Visual Acuity (VA) “E” test chart for 5 meters (see Appendix 9.2.1, SM p.21.)
 - 1.2 A Visual Acuity (VA) “E” test chart for 35-40 cm (see Appendix 9.2.2, SM p.23.)
 - 1.3 A screening protocol sheet (see Appendix 9.2.3, SM p.19) for those being examined.
2. An occluder, fashioned from a piece of carton (4 cm x 4 cm) to cover completely the eye not being investigated.
3. Five +1,00 D flippers to be shared among the screeners.
4. A Post-Evaluation Questionnaire which will be filled and returned to our Kenyan contacts no later than 3 months after by those who have received eyeglasses. (see Appendix 9.3.)

3. Method

On January 1st, 2007 the studies author arrived in Kenya and proceeded to visit the villages – Kamusinde (Jan.3rd) Hekima (Jan. 4th), Sirisia (Jan. 5th) and Bungoma (Jan. 6th). The screeners training was immediately initiated each day and successfully concluded by all 19 participants. In Kamusinde 8 assistants were trained, in Hekima 7 and in Sirisia 4. At Bungoma, as a result of a miss in information, there were no assistants to train but two from Sirisia were able to help.

On arrival to each village the screening process began. Visual Acuity (VA) “E” test charts were nailed to trees or taped to mud walls. At five meters distance, a line was drawn in back of which the persons being examined sat on a chair or bench. All VA values were noted in decimal acuity.

- a) The screener first partially completed the Screening Protocol by posing a few initial questions regarding the persons name, address, age, gender, literacy capacity etc (See appendix 9.2.3, SM p.19).
- b) The uncorrected VA was taken for distance sight for the right eye and then the left eye.
- c) Near VA was taken binocularly at 35-40 cm. using the Visual Acuity (VA) “E” test chart (See appendix 9.2.2, SM p.23).
- d) Observation of any evident strabismus (squint) was observed directly by the screener or identified by the optometrist using the cover test.
- e) The list of questions posed and the protocol sheet was checked to see that they were completed before continuing with the next screening. The answers and results were quantified and charted. (See appendix 9.3 and 9.3.1)
- f) Screening with the +1,00 D lens was done on those with the uncorrected or habitual VA 1,0. It was expected that with +1,00 D the monocular VA would decrease from 1,0 to 0,4*

If this is not the case this can be indicative of hypermetropia or the wrong refractive correction of eyeglasses the person in question is wearing and would be referred directly to an eye specialist.

* The “E” charts employed had no logotypes greater than VA 1,0 equivalency and therefore it was impossible to determine if a +1,0 lens would decrease VA 1,5 to VA 0,7, or VA 2,0 to 1,0.

4. Results

Of the 128 youth under 20 years of age who were screened, 10 of the 61 young girls, (that is 16,4% of the girls) were referred to an optometrist and only seven needed eyeglasses for hypermetropia and three were referred to an eye doctor for strabismus. With regards the 67 young boys, 10 (17,5 %) were referred and five received eyeglasses to correct hypermetropia and another five were referred to an eye doctor for strabismus.

For those between the ages of 20 and 35, seven of 34 women (20,6%) were referred to an optometrist and received eyeglasses after the examination. Eight of the 37 men (21.6%) in this young adult age group were also referred and received appropriate attention and eyeglasses. The limited strabismus observed (three among the women, two among the men) they had had since childhood and they would continue living with it.

84,4% of those under 20 and 78,9% of the middle aged adults (between 20-35 years of age) did not need to be referred to an eye specialist. Of the 95 women only 17 were referred and 14 actually needed spectacles. Of the 104 men, 18 were referred and only 13 needed eyeglasses as shown in figure. 4.1.

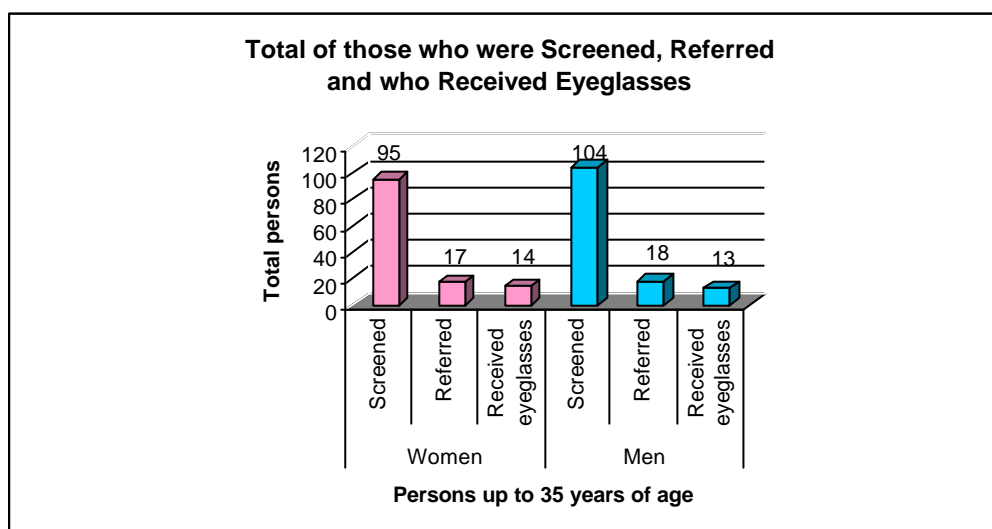


Fig. 4.1: Of the 126 women screened, ≤ 35 years of age, only 14 (11.1%) needed eyeglasses. Of the 135 men screened in the same age group, only 13 (9.6%) needed eyeglasses.

For those 36 years and older it was unnecessary to screen them as they would all be attended by an eye specialist anyways. Having reached the age of presbyopia*, all 111 women and 163 men were examined directly and given correction either for distance, near or both.

Regarding the refractive powers of the eyeglasses provided, 342 (92,4%) of 370 pair of eyeglasses donated were with plus powers for the correction of hypermetropia or related to presbyopia. Only 28 pair (7,6%) of all the eyeglasses donated helped to correct myopia or a myopic shift due to cataract development.

* Presbyopia: "A refractive condition in which the accommodative ability of the eye is insufficient for near vision work, due to ageing..." Dictionary of Optometry and Visual Science", Millodot, Michel.

Almost three of every four, that is 274 pair (74,1%) were for use for near work (reading, sewing, cleaning beans and rice etc) as oppose to distance seeing.

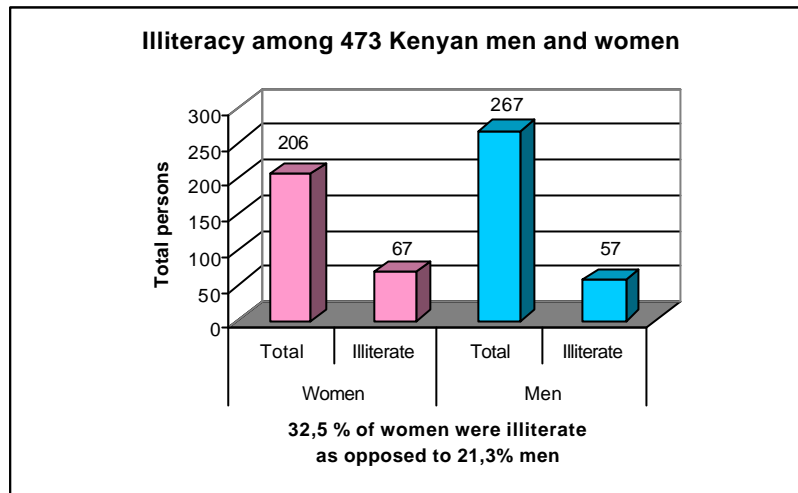


Fig. 4.2: Illiteracy was more prevalent among women than men.

About one-third of all the women were illiterate. 67 women (32,5%) declared that they could neither read nor write. About one in five of the men, that is 57 men (21,3%) confessed to being illiterate as is shown in figure. 4.2.

4.1 Post-Evaluation Questionnaire

The Post-Evaluation Questionnaire (See Appendix 9.3) was left in the hands of CREADIS' Executive Director, Gladys Nabiswa, to be distributed within the next three months to all who had received eyeglasses. It was one way for VFA's to evaluate the work done.

Seven were quick to respond and fill out the questionnaire and returned it to the study's author before his departure from the country. It is hoped that the rest of the Questionnaire sheets, once completed, will be sent by Gladys Nabiswa back to Sweden.

The comments of the seven who received eyeglasses, are here quantified.

1. Three women and four men responded.
2. Two of the three women could read. All the four men were literate.
3. All seven expressed satisfaction with their eyeglasses.
4. Of the three women, two had eyeglasses for distance, one for reading.
Three of the four men had eyeglasses for near, one had for distance.
5. To the question "How have these eyeglasses bettered your life?", all expressed contentment to be able to see clearly far and near, depending on their needs.
6. As to the question "Have you had any negative consequences do to our eyeglasses?", the answer was "no" or "not yet anyways".
7. As to "What can VFA do better next time?" they expressed their wish that VFA return, to also assist with medicinal care, to continue offering educational training courses, and to establish a base clinic which could provide continuing services.
8. As to "Any other comments?", there were requests for VFA to return and attend more people. Thanks were given and demands for further optometric education.

5. Discussion

The purpose of the study was to see in part, if regular visual screening could be considered an important element in a countries development plan, such as in Kenya, and to see how easy it was to implement VFAs Screening Manual.

The empirical experience has shown that it would be easy, important and inexpensive to train literate adults to screen thousands of their compatriots and identify those in need to be referred to an eye specialist. Moreover VFAs Screening Manual was easy to understand and implement specially when one focused on the crucial pages 9-13 and 19-23. It took only about 30 minutes of instructions and training before the screeners were actively putting to practice their knowledge and screening their compatriots. This compact and stressful schedule was do in part because the trip to Kenya was short and intensive forcing the author to work quickly and maximize time and effort. A future project will allocate more time to go through the whole screening Manual thoroughly and not just the crucial pages. However it was a good experience to see that the screening process could be successfully implemented in such a short period of time.

By the data gathered it was quite clear that visual screening was of great value when focusing on the youth and young adults (younger than 36 years of age) since a high percentage (84,4% of those under 20 and 78,9% of the middle-aged adults) did not need to be referred to an eye specialist.

For the adults at the age of 36 and older, with the onset of presbyopic tribulations, it could be considered redundant screening them since almost all would need to see an eye specialist anyways for eyeglasses to be used for distance, near or both.

The next step after the referral of those with eye anomalies to eye specialists, however demands the active roll of the government or a Non-Governmental Organization (NGO) to accept the costs for attending those in need, for the production of special eyeglasses or orthoptic help.

The inevitable conclusion is that it is crucial to provide regular visual screening, above all among youths. In this study, only 35 of 199 children and young adults 35 and younger were referred for a more comprehensive exam by an eye specialist. Thanks to the screening 84,4% of those under the age of 20 and 78,9% of the middle age men and women, had no need to be attended by an eye specialist. A lot of valuable time and costs were saved thanks to the preliminary visual screening.

6. Recommendations

The question “*Can read?*”: *Yes* or *No* in the Screening Protocol should be rephrased. Many answered “*No*” since that was the reason why they had come to VFA’s screening clinic. Once they would receive eyeglasses they hoped to be able to read again. The real purpose of the question was in fact to ascertain whether or not they were literate.

To be able to identify a strabismus, in particular, small squints can be trying for an experienced eye specialist and certainly was difficult for the newly trained screeners. Even the use of a +1,00 D. flippers and its interpretation demands a deeper understanding, more so than was provided in such a short and intensive training pass.

The ideal situation would have been to train the screeners weeks or months before the arrival of eye specialists. It would have given the screeners the opportunity and necessary time to go through the entire VFA Screening Manual, absorb and better understand their newly acquired knowledge and to return to their town and villages, screen the inhabitants and those in nearby hamlets and have those in need referred to eye specialists upon their arrival.

The screening process should be focused particularly on attending the youth and young adults (at the age of 35 and under). All those 36 years of age and older should be attended directly by an eye specialist as they most certainly will need some sort of correction do to age-related visual problems.

The next step after the referral of those with eye anomalies to eye specialists, however demands the active roll of the government or an NGO to accept the costs for attending those in need, for the production of special eyeglasses or orthoptic help.

Vision For All’s Screening Manual has been offered free of charge to the colleagues who invited the Swedish delegation and who also collaborate with the Ministry of Health, with the hopes that the publication will be read, analyzed, adapted to their needs, translated into Swahili and other languages and printed for future screeners.

7. References

- Ball, Geoffrey: Symptoms in Eye Examination, © 1982, pp.15-26, B-H.
- Barnhälsovårdens metodbok i Östergötland, Sweden, okt. 1999.
- Bennett & Rabbetts: Clinical Visual Optics, © 1998, pp.30 - 43, 62-72,
Third edition B-H.
- Bäckström, Gunnie et al., Ögon och Öron, Almqvist & Wiksell, p.18.
- Esckridge, J. Boyd et al: Clinical Procedures in Optometry, © 1991,
pp.17-29, Lippincott Co.
- Grosvenor, Theodore: Primary Care, Optometry, © 2002, pp.4-8,
Fourth edition B-H.
- Gustafsson, Jörgen, ”Effektiv visus”, Aktuell Optik och Optometri, p.41. 10/02.
- Hahnenberger, Rudolph: Ögon undersökningar, © 1992, pp.28-29,
19-122, Tika Läkemedel och Studentlitteratur.
- Millodot, Michel: Dictionary of Optometry and Visual Science, © 2002,
Fifth edition B-H.
- Promadmaso: Refraksjonsmanual, april 1999, Høgskolen i Buskerud,
Institutt for optometri, Kongsberg, Norway.
- Vaughan, Daniel et al: General Ophthalmology © 1992, Thirteenth edition,
Prentice-Hall Int. Inc.
- Werner, David, Where There Is No Doctor © 1977, pp. 217-228,
The Hesperian Foundation.
- Williams & Warwick: Gray’s Anatomy, © 1980, pp. 1175-1178,
36th edition, W.B. Saunders Company.
- Zadnik, Karla: The Ocular Examination, Measurements and Findings, © 1997.

8. Acknowledgments

It is a pleasure to acknowledge the encouragement and assistance of the many friends and colleagues who, in one way or another, assisted me in this work.

My sincere gratitude to Synoptik for supporting my participation in Optikerförbundet / Linköping University course, “Arbetsmedicin för Leg. Optiker”.

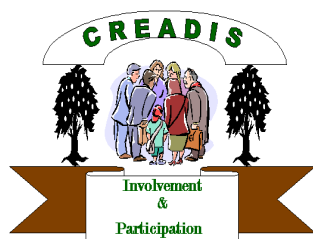
For the invitation to Kenya I thank CREADIS (Community Research in Environment and Development Initiatives) Executive Director, Gladys Nabiswa. For organising and financing the trip in such short notice, thank you SV (Studieförbundet Vuxenskola) Inga-Britt Karlbom and Stefan Landberg. To Cecilia Godoy and, in particular, Tomas Håkansson I am indebted för helping me with the charts and with the Photo Documentation. For proofreading the manuscripts and making valuable suggestions for the final draft special thanks to Agneta Håkansson-Bolve, Marita Godoy and, in particular, my “Handledare” / Mentor, Optometrist Jörgen Gustafsson, PhD.

Without the help of VFA, my friends and colleagues, and in particular, the support of my wife and children, this study would not have reached its final form, which is far from perfect and, in that regard, my responsibility alone.

-J.J.G. 2007 –

9. Appendix

- 9.1 Invitation from Gladys Nabiswa, Executive Director of CREADIS, Kenya.
- 9.2 VFA's Screening Manual with particular focus on pp.9-13, 19-23.
 - 9.2.1 A Visual Acuity (VA) "E" test chart for 5 m., p.21.
 - 9.2.2 A Visual Acuity (VA) "E" test chart for 35 - 40 cm., p. 23.
 - 9.2.3 Screening Protocol, p.19.
- 9.3 Post-Evaluation Questionnaire
 - 9.3.1 Post-Evaluation Questionnaire: Response
- 9.4 Statistics: Age and Gender
 - 9.4.1 Eyeglass Dioptre Powers
- 9.5 Photo Documentation
 - 9.5.1 Photo Documentation



Community Research in Environment And Development Initiatives (CREADIS)

P.O. Box 871, Bungoma, Kenya. Tel. 254 (0) 55 30488
Office: Off Kanduyi – Mumias Road, behind Marell Academy
Email: creadis2000@yahoo.com

December 23, 2006

John J. Godoy
President and Optometrist
Vision For All (VFA)
Sweden

RE: LETTER OF INVITATION

Following several email communications between us and SV. Sweden, we are happy to officially invite you and Vision For All (VFA), Sweden to come to Bungoma District in January, 2007 to do visual screening and eye examinations for the people in need within the district.

We would also be thankful if you could bring with you good used eye glasses for those who might need them.

Thank you in advance and we look forward to meeting you on 3rd of January, 2007.

Yours Sincerely,

Gladys Nabiswa
Executive Director,
CREADIS

(On Behalf of CREADIS and KCCBO)

The Tests and their Administration:

The Eyesight Test

Needs:

1. A room, at least 5 meters in length, with doors to ensure privacy. (It can also be done outside if no indoor places are available.)
2. Good lighting.
- 3a. For distance test:
 - An Eye chart, Snellens "E" (5 m.). The charts should be placed at eye level to the seated or standing person who is being tested. (p. 21)
- 3b. For near test:
 - An Eye chart, Snellens "E" (35-40 cm) should be held at near distance in a reading position. (p. 23)
 - A needle and thread can also work but it demands a steady hand.
 - A newspaper or other written material is sufficient to test the eyesight of a literate person.



Screening Assistant at work
(Guatemala 2004)



Screening Children (Uganda 2004)

4. Occluder: A piece of paper/carton to cover completely the eye not being checked so that it cannot see around the edges.
5. A pointer (a stick, pencil etc.) for the assistant to point out the exact "E" figure to look at. A pointer is preferable than using ones own finger. It is easier to see.
6. A meter ruler/stick to measure the meter distance for far and 35-40 cm distance for near.
7. A Screening Protocol Sheet to record the results. (p.19)

Method (distance 5 m):

1. Snellens “E” chart is on the wall 5 meters away.
2. Go through the principles of the test by having an assistant 5 meters away point at one of the “E” figures.*

With your hand and next to the person being examined, point in the direction the “E” is pointing. Let the person do some examples until you both are sure that he/she understands. Be positive with each correct answer: “*Well done!, Bravo!, Good!*”!

3. Everybody, especially children, should be checked quickly before they become tired. Begin checking one eye at a time (monocular vision). Start with the right eye first and cover the eye not being checked (that is the left eye in this particular moment) with a bit of paper or the persons own hand, being sure that the eye is well covered.
4. Point, at a “E” figure which corresponds to the visual acuity of 0,1 (20/200).
5. Test quickly downwards a few “E” figures of each line until you reach more or less the persons visual acuity.
6. Now test the other eye (cover the right eye and test the left). (Repeat steps 4, 5.)
7. Now test both eyes open. The binocular vision should be equal to or better than the monocular vision. It is wise to test the monocular vision first to avoid any memorizing of the “E” figures.
8. If the person has eyeglasses, repeat steps 4-7 with the glasses on.
9. People who see mono- and binocularly 0,8 (20/25) or better, with/without eye-glasses, who are emmetrope with/without eyeglasses, and do not have any asthenopia (no headaches, tired eyes, diffuse symptoms etc.) do not need any further attention from VFA.
10. A person who does not satisfy the visual acuity level deemed satisfactory, should be tested again after a few hours.
11. Record all findings in the Screening Protocol.(p.19)



Screening Assistant at work
(Guatemala 2004)

* *The assistant should point with the stick first directly in the middle of the letter being observed and then draw the stick down slightly under the letter stopping there. In this way there should not be any doubt as to which “E” letter being studied.*

Criteria for Referral:

Send a person to an optometrist/ophthalmologist if he/she sees worse than 0,8 (20/25) in one eye and/or he/she has a difference of more than two lines on the eye charts between each eye.



Dr. Kalula and Dr Yongolo, attending a patient referred to them by a screening assistant. Photo: Sten Jansson (Tanzania 2004)

+1,0 D Test:

With the aforementioned test we can safely identify all myopes and those with some levels of astigmatism, who should be referred to an optometrist. However to assure ourselves if we have an emmetrope or hypermetrope before us, we must do one more test with a +1,0 D hand held lens or lorgnette.*

The procedure is the following:

We assume that the person sees all the lines on the chart comparable to a visual acuity of 1,0 (20/20).

1. Begin with the right eye and cover the eye not being checked with a bit of paper, carton or the persons own palm of his/her hand.
2. Put the +1,0 D. lens in front of the right eye.

a) If the visual acuity drops we can assume that the eye in question is emmetrope or quite near emmetropia.

b) If with a +1,0 D lens in front of the eye, the person still can read the visual acuity line 1,0 (20/20) we can assume that the person in question is a hypermetrope and should be referred to an optometrist.



Screening Assistant performing +1,0 D test (Guatemala 2004)

* (Here we are not sure if our screeners will have accessibility to such a lens.)

The Eyesight Test:
(Near, 35 - 40 cm.)

After having examined the long distance sight, the near sight should be tested. The distance should be about 35 – 40 cm. People can also judge their personal near distance by holding their fist upon their forehead. The distance from their forehead to the tip of their elbow is a suitable working/reading distance just for them.



Mapuche indian with Needle and Thread.
 (Chile 1996)

Needle & Thread Test:

Literate and illiterate people can test their near sight by threading a thread through the eye of a needle. Though this test is more difficult than Snellens “E” test for near (demands greater dexterity – a steady hand), it is closer to a real life situation - the everyday sewing/repairing of clothes.

Snellens “E” Near Test: (35 - 40cm)

Literate and illiterate people can also test their near sight by holding the Snellens “E” chart at a comfortable reading distance. Just as with the Snellens “E” distance test, they indicate with their hand where the “E” figure is pointing to and see how far down the chart they can see.

Reading Test:

Material: Literate people should be allowed to look at a newspaper or other literature with normal small print and at a normal reading distance and read comfortably.

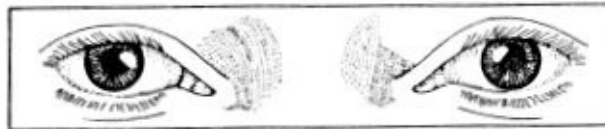
The need of good lighting should be emphasized. For all those 35 years and older reading eyeglasses might be needed.



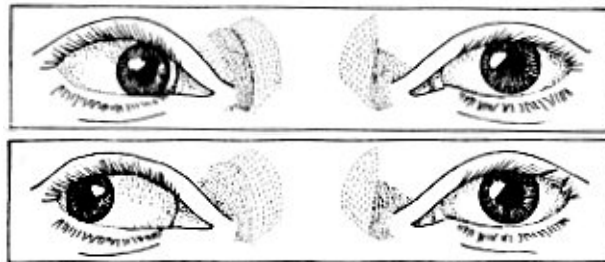
Elderly woman trying out reading glasses.
 (Nicaragua 2000 - photo: T. Håkansson)

The Strabismus Test:

Often you can see if there is a strabismus or squint with your own eyes. A young child with a broad nose bridge and eventual epicanthus (a fold of skin from the upper to the lower eyelid partially covering the inner nasal part of the sclera of the eye) can appear to have a squint.



Orthophoria.
(Normal position of the eyes.)



Esotropia

Exotropia

inwards



Deviating eye turned



outwards

Needs:

A penlight, lamp or candle.

Method:

1. Let the person focus on the light from 50 cm – 100 cm distance.
2. Hold the lamp in front of you so that you follow the light rays and observe the persons eyes.
3. Observe the light reflections on the persons pupils.
4. If the reflection lies symmetrically in both pupils it is most unlikely that there is a squint.

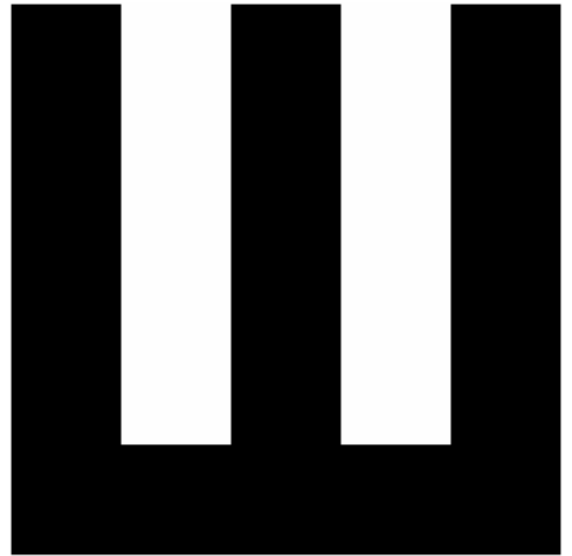
(The reflection lies normally slightly of centre, nasally from the pupils centre.)

Criteria for Referral:

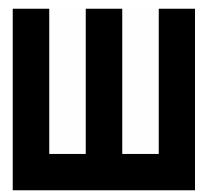
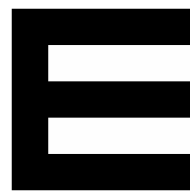
Send everybody, regardless of age, with a constant strabismus, (tropia) to an ophthalmologist.

Eye Chart: Snellen “E” (5 meters)

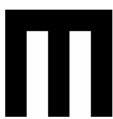
This page should be photocopied to use in the field. Be careful, while copying, to avoid changing the size (enlarging or diminishing) the “E” chart.



0,1



0,3



0,5



0,8



1,0

Eye Chart: Snellen “E” (35 – 40 cm)

This page should be photocopied to use in the field. Be careful, while copying, to avoid changing the size (enlarging or diminishing) the “E” chart.

Э Е М Э Ш Е М Э М

24p

М Ш М Э Ш Е М Е Э Э

18p

М Э М Ш

12p

Э М Э М Е Ш М Ш Э

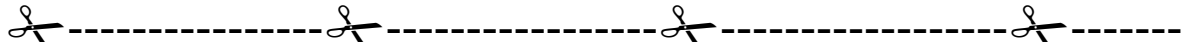
8p

Е Ш Э Е Е Ш Э М

5p

Appendices: Screening Protocol
 (Copy half as many copies as needed and cut in two.)

<p><i>Name:</i> <i>Date:</i></p> <p><i>Address:</i></p> <p><i>Comments:</i></p> <hr/> <p>Distance Visual Acuity: Without eyeglasses: Right: Left: Both:</p> <p>With eyeglasses: Right: Left: Both:</p> <p>Near Vision: With/without eyeglasses: ✓ Good: <input type="checkbox"/> Poorly: <input type="checkbox"/></p> <p>Referral ✓: Yes ↗ No ↗</p> <p>Optometrist / Ophthalmologist: <input type="checkbox"/> Everything is ok: <input type="checkbox"/></p>	<p style="text-align: center;"><u>Screening Protocol</u></p> <p><i>Age:</i></p> <p><i>Gender:</i> ✓ M: <input type="checkbox"/> F: <input type="checkbox"/></p> <p><i>Can read?</i> ✓ Yes: <input type="checkbox"/> No: <input type="checkbox"/></p> <hr/> <p><i>Strabismus:</i> ✓ Yes: <input type="checkbox"/> No: <input type="checkbox"/></p>
---	---



<p><i>Name:</i> <i>Date:</i></p> <p><i>Address:</i></p> <p><i>Comments:</i></p> <hr/> <p>Distance Visual Acuity: Without eyeglasses: Right: Left: Both:</p> <p>With eyeglasses: Right: Left: Both:</p> <p>Near Vision: With/without eyeglasses: ✓ Good: <input type="checkbox"/> Poorly: <input type="checkbox"/></p> <p>Referral ✓: Yes ↗ No ↗</p> <p>Optometrist / Ophthalmologist: <input type="checkbox"/> Everything is ok: <input type="checkbox"/></p>	<p style="text-align: center;"><u>Screening Protocol</u></p> <p><i>Age:</i></p> <p><i>Gender:</i> ✓ M: <input type="checkbox"/> F: <input type="checkbox"/></p> <p><i>Can read?</i> ✓ Yes: <input type="checkbox"/> No: <input type="checkbox"/></p> <hr/> <p><i>Strabismus:</i> ✓ Yes: <input type="checkbox"/> No: <input type="checkbox"/></p>
---	---

Post – Evaluation Questionnaire

Sometime within the past 3 months, VFA offered you an eye-screening and, for those like you who needed it, a thorough eye examination and eyeglasses. Now we would like to know how well the eyeglasses have functioned.

Country: City: Date:

1. Man: Woman: Age:

2. Do you know how to read and write?
Yes No

3. Are you satisfied with your eyeglasses?
Yes No

4. You have eyeglasses for ...
far. near. both.

5. How have these eyeglasses bettered your life?
.....
.....

6. Have you had any negative consequences do to your eyeglasses?
.....
.....

7. What can VFA do better next time?
.....
.....

8. Any other comments?
.....
.....

Thank you for your participation!

Post – Evaluation Questionnaire : Response

The Post-Evaluation Questionnaire was left at the hands of Gladys Nabiswa, CREADIS, Executive Director to be distributed within the next three months to all who had received eyeglasses. 7 were quick to fill out the questionnaire and returned it to the study's author, before he left the country. Their comments are here quantified.

1. 3 women and 4 men responded.
2. 2 of the 3 women could read. All the 4 men were literate.
3. All 7 expressed satisfaction with their eyeglasses.
4. Of the 3 women, 2 had eyeglasses for distance, 1 for reading.
3 of the 4 men had eyeglasses for near, 1 had for distance.
5. To the question “How have these eyeglasses bettered your life?”, all expressed contentment to be able to see clearly far and near, depending on their needs.
6. As to the question “Have you had any negative consequences do to our eyeglasses?”, the answer was “no” or “not yet anyways”.
7. As to “What can VFA do better next time?” they expressed their wish that VFA return, to also assist with medicinal care, to continue offering educational training courses, and to establish a base clinic which could provide continuing services.
8. As to “Any other comments?”, there were requests for VFA to return and attend more people. Thanks were given and demands for further optometric education.

$$\frac{\#}{\text{tot.}} \times 100 = \%$$

Statistics from Kenya
Age and Gender

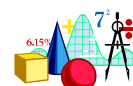
(Jan. 3-6, 2007)

Age:	Women				Tot.	Men				Tot.
	1	2	3	4		1	2	3	4	
Day	1	2	3	4		1	2	3	4	
under 8	1	13	2	0	16	2	16	3	1	22
8 - 19	8	15	16	6	45	10	15	14	6	45
20 - 35	5	7	10	12	34	14	6	8	9	37
36 - 49	12	6	12	13	43	18	12	11	18	59
50 - 65	17	5	11	12	45	10	11	22	23	66
over 65:	6	9	4	4	23	12	7	15	4	38
Tot. =	Women					& Men				
	49	55	55	47	206	66	67	73	61	267

$\frac{\#}{\text{tot.}} \times 100 = \%$

Jan. 3-6,
2007

**Statistics from Kenya
Eyeglass Dioptre Power**



Plus lenses

+ tot. 148 + 194 + = 342

Powers	Women ♀		Tot.	Men ♂		Tot.
	Distance	Near		Distance	Near	
± 0 , sunglasses	79			88		
+0,25 D - +0,75 D	4	3		2	3	
+1,00 D - +1,25 D	13	24		11	23	
+1,50 D - +1,75 D	8	11		10	17	
+2,0 D - +2,25 D	4	26		5	38	
+2,50 D - +2,75 D		18		1	31	
+3,00 D - +3,75 D	1	18		3	21	
+4,0 D - +4,75 D	2	11		4	14	
+5,0 D - +6,75 D		3			3	
+7,0 D - ∞	1	1		2	6	
Tot. =	33	115	148	38	156	194

Minus lenses

- tot. -

-0,25 D - -3,25 D	7	1		15	2	
-3,50 - ∞				3		
Tot. =	7	1	8	18	2	20

Can read? ♀		♂		OBS:	
Yes: ☺	29 37 33 40	42 52 65 51		Pinguecula	
	139 or 67,5% of women could r&w.	210 or 78,7% of men could r&w.		Pterygium	
No: ☹	20 18 22 7	24 15 8 10		Cataract	
	67 or 32,5% of women were illiterate.	57 or 21,3% of men were illiterate.		Amblyopia	

Photo Documentation



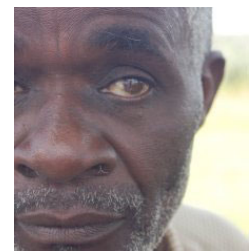
Screeners training in Kamusinde



Orphan children (parents died of HIV-AIDS) screened at Hekima



Screeners training in Sirisia



Cataract



Screeners at work



Strabismus



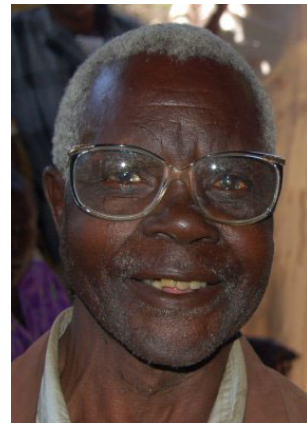
Need for new eyeglasses?



At the library



All over 35 were attended by an eye specialist



Old glasses exchanged to new



Thank You SV, LiU, CREADIS, VFA, Lions, Synoptik and the Swedish people.