



SCREENING MANUAL



**Education is the most powerful weapon
which you can use to change the world....**

**- Nelson Mandela -
(South African, 1922-)**

John J. Godoy



SCREENING MANUAL



The author with Paulo Freire, Boston College (July 1982, Boston, MA, USA.)

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Coverphoto: Screening eye patients in
Kamuli, Uganda, 2004.

*Solidarity requires that one
enter into the situation of those
with whom one is solidary;
it is a radical posture.*

**- Paulo Freire -
(Brazilian, 1921 - 1977)**

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Preface:

Vision For All's (VFA) Screening Manual introduces briefly the Eye and its parts as well as ametropia (refractive errors), a few principal eye pathologies (eye sicknesses) and how to look for strabismus (squint). VFA's main intention with this Manual, however, is to train volunteers to do simple eyesight screening similar to what nurses in Sweden do with young children. It is hoped that a few months prior to the VFA brigades arrival, a few VFA members, if needed, will be able to visit the country in question and train the future screeners on how to use the Screening Manual. The *screener*, a literate person of a developing country, with his/her new acquired knowledge, will then be able to check thousands of children and adults and select the 10-15% who *might* have an eyesight problem and should be booked for a second visit, this time with an Optometrist or an Ophthalmologist for a more thorough examination. All adults over 35 years of age should be examined for their long distance seeing as well as for eventual need for near work eyeglasses (for reading, sewing etc.).

With this screening process, the future VFA brigades, upon arriving at the country in question a few months later, will be able to work more efficiently by dedicating their valuable time and energy to those patients with possible eyesight problems and in need of their attention.

The only visual acuity test chart presented in this manual will be the Snellens "E". Everybody, irrespective of language and culture, literate or illiterate, young or old – can learn to use it quickly.

This Manual has been developed, focused on people who have none, or very little knowledge about the eyes and/or the optometry profession. (A Vocabulary list is provided on pp. 25-28) It is taken for granted that the future screeners do not possess a lens case nor a test frame and that is why it is mentioned, only in passing, the test with a +1,0 D lens (p.11).

VFA hopes that the *screeners*, once trained by VFA or other qualified educators, will return home to work and educate others. By so doing, more people in need of primary eye care will be reached. Certainly a propitious side effect might be that the country's government will recognize how valuable and important primary eye care is for their nations well being, and accordingly decide to implement and/or expand optometry programs to educate future professionals.

-J.J.G. 2005 -



Acknowledgements:

*All nations will be unhappy
if they do not educate all
their sons and daughters.*

**- José Martí -
(Cuban, 1853-1895)**

It is a pleasure to acknowledge the encouragement and assistance of the many colleagues and friends who collaborated in the formation of this Screening Manual. A special thanks for help in layout, illustrations and design go to Marita Godoy and, in particular, Tomas Håkansson.

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For the financial help to publish this work, our gratitude to Forum Syd and Studieförbundet Vuxenskolan (SV).

Without the help of my family, friends and colleagues, this screening manual would not have reached its final form, which is far from perfect and, in that regard, my responsibility alone.

-J.J.G. 2005 -



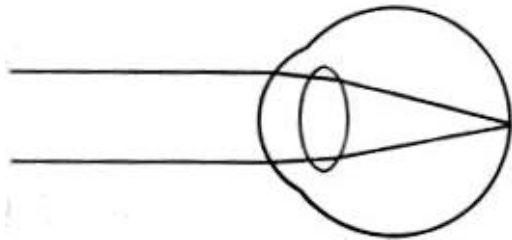
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Introduction to Eye Anomalies :

Emmetrope:

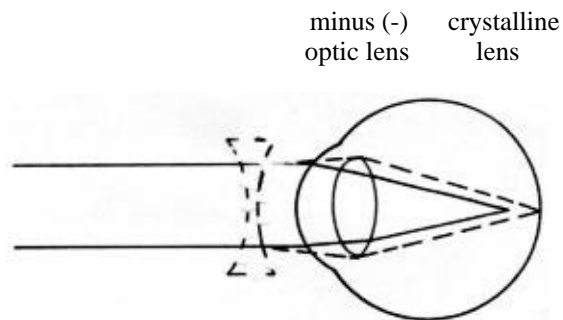


An Emmetropic (“normal”) eye looking at distance.

- The person, without effort, that is with relaxed accommodation (*acc*), has maximal distance visual acuity.
- The object the person looks at from far away, focuses directly on the macula.
- There is a harmonious relationship between the refractive power and the length of the eye.

Myope:

- The eye at rest has a dioptré power that is too strong and/or the eye is longer than the non-accommodated focal length of the refractive elements (cornea + lens). The light rays from distance focus within the eye and not on the macula.
- A near sighted person is helped with minus lenses.



A myopic (near sighted) eye looking at distance, with and without correction. (Dotted line = with correction)

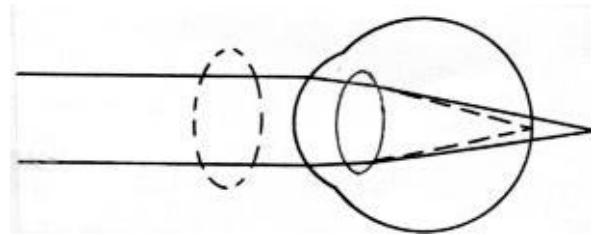
Symptoms: Does not see well at distance but sees well near objects.



Hypermetrope:

- The eye, relaxed and free from accommodation, has too little dioptric power and/or the eye is shorter than the non-accommodated focal length of the refractive elements (cornea + lens). The light rays from distance focus behind the eye.
- If a person is young and has a lot of amplitude of accommodation he/she might see well at distance and near. His/her true hyperope nature is discovered when with +1,0 D or higher his/her distance eyesight stays the same or improves!
- A far-sighted person is helped with plus lenses. However it is worth noting, that a far-sighted person, who does not have any symptoms (asthenopia) might not use the eyeglasses given him/her.

plus (+) crystalline
optic lens lens



A hypermetropic (far-sighted) eye looking at distance, with and without correction. (Dotted line = with correction)



Screening Assistant helps an elderly woman try on a pair of reading glasses. (Guatemala 2004)

Symptoms:

- The squint inwards, towards the nose, can be a sign of hypermetropia. The person accommodates even for distance seeing, which in turn causes the eyes to converge.
- A headache can result if the person is forced to use his/her accommodation both for distance and near vision.
- Problem with near seeing before the presbyope age (ca 35-45 years of age).
- Tired feeling around the eyes – Asthenopia.
- Bad vision, both at distance and near, if the refraction is more than the total amplitude of accommodation.

Presbyope:

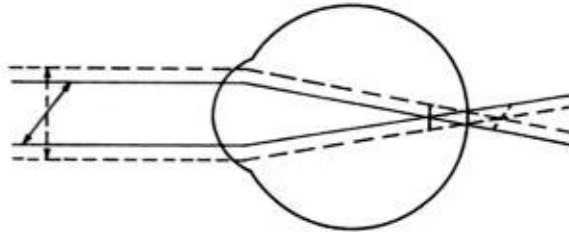
A natural development around the age of 35-45, is the aging of the lens which makes near seeing more difficult. Irrespective of what

correction one has at a distance, he/she will usually need an addition (ADD) somewhere between +1,0 D - +3,0 D for near sight. Multifocals or progressive eyeglasses are recommended.

- The Add power will increase up to a maximum power of +3,0 D for healthy eyes, when reaching 65 years of age.



Astigmatic:



An astigmatic eye looking at an object, without correction.

A condition of refraction in which the image of a point object is not a single point but two focal lines perpendicular to each other, at different distances from the optical system. This can be corrected by cylindrical lenses.

Symptoms: Can result in bad vision at all distances.

Visual Acuity:

In this manual we will present the visual acuity in the decimal form. The following chart gives the approximate equivalent values in feet and metres.

One should be careful not to translate the decimal value to a percent:

0,3 vision is not equal to 30% vision!

The Effective Vision Scale* will render a better interpretation of approximately what a decimal figure will translate into percent.

	<u>Effective Vision %</u>	<u>Decimal</u>	<u>20 Feet</u>	<u>5 Metres</u>
		2,0	20/10	5/2.5
	100	1,0	20/20	5/5
		0,9	20/22	5/5.4
	95	0,8	20/25	5/6.25
		0,7	20/30	5/7.5
	90	0,6	20/32	5/7,9
	85	0,5	20/40	5/10
	75	0,4	20/50	5/12.5
	65	0,3	20/60	5/15.8
	50	0,2	20/100	5/25
	20	0,1	20/200	5/50
	10	0,05	20/400	5/100

* The Effective Vision Scale was implemented by the American Medical Association (AMA) in 1925 and amended in 1955, in order to give a more correct representation of the effective vision in percent.



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 5 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 eyeglasses, 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)

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.

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.

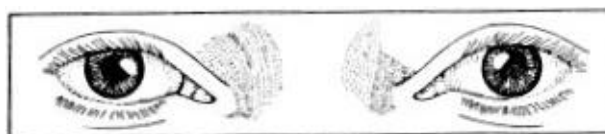


Elderly woman trying out reading glasses.
(Nicaragua 2000 - photo: T. Håkansson)



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.



General Information:

The Structure of the Eye

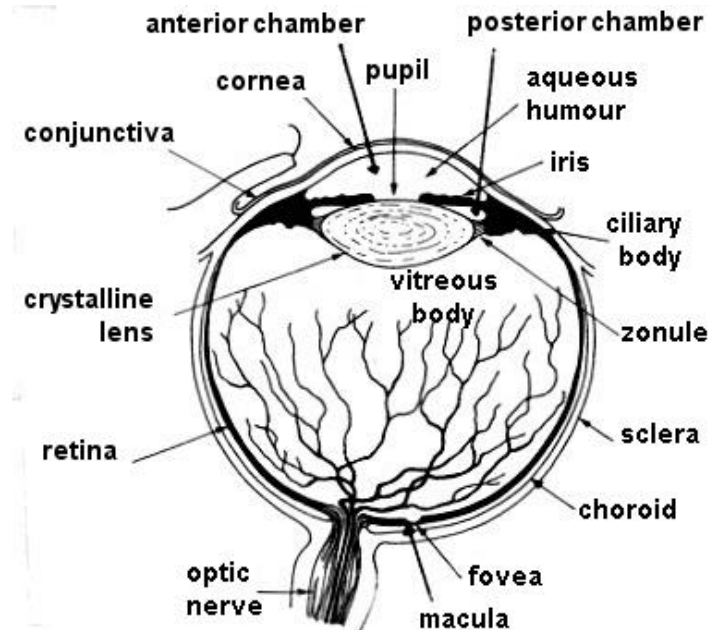


Fig. 41 Cross-section of the eye

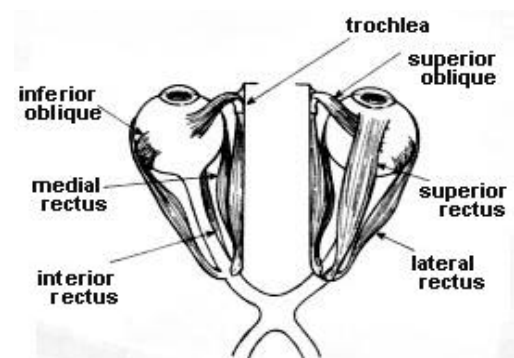
Millodot, p. 100

- Aqueous humour:** Clear fluid that fills the anterior and posterior chambers of the eye. Produced in the ciliary body, it provides nutrients to parts of the cornea and lens.
- Chamber, anterior:** The space between the cornea and iris. Contains aqueous humour which circulates from the posterior chamber, through the pupil and into the anterior chamber.
- Chamber, posterior:** The space between the iris and the lens. This space is filled with aqueous humour.
- Ciliary Body** Part of the uvea, anterior to the ora serrata and extending to the root of the iris and comprising the ciliary muscles, forming a ring.
- Conjunctiva** A thin transparent mucous membrane lining the inside of the eyelids over the sclera where it merges with the corneal epithelium at the limbus.
- Pupil:** The black hole of the eye. The size is mostly dependent on how much light there is. Lots of light results in a small pupil (the pupil contracts), little light and the pupil enlarges (dilates) to allow more light into the eye. In general, healthy eyes should have the same size pupils. However 10% of all people have different size pupils without any pathology.



- Iris:** The coloured part of the eye that regulates and forms the size of the pupil. The barrier between the anterior and the posterior chambers.
- Cornea:** The front, transparent and powerful refractive part of the eye.
- Crystalline Lens:** The transparent ellipse formed body behind the pupil. With the help of the ciliary body and the zonule fibers upon which it hangs, the lens can change form (accommodate) to break the light rays coming through the pupil and reaching the retina. Depending on if, or how much it accommodates, the eye can focus to distance or near objects.
- Vitreous Body:** A colourless, transparent gel behind the lens and occupying the vitreous chamber.
- Retina:** The layer which covers the inside, posterior part of the eye. It contains all the light receptors (the rods and cones) to receive light rays for processing.
- Choroid:** The layer behind the retina, rich with blood and which provides oxygen and nutrition to the eye.
- Macula:** The spot on the retina with good visual acuity and colour vision.
- Fovea:** Centrally located within the macula, there is the fovea with the best visual acuity.
- Optic Nerve:** Through this nerve all the electrical/chemical signals from the retina are sent to the back of the brain for visual processing.
- Eye Muscles:** Each eye has six eye muscles which regulate the eye movements. It is important that these eye muscles work easily, smoothly and in a synchronized fashion to avoid strabismus or squint.
- Sclera:** The eyes white outer layer which we can see. The six eye muscles which rotate the eye are attached here. It is covered by the conjunctiva.

Fig. 86 Extraocular muscles of the eye.
(The left superior rectus muscle is not shown to allow a clearer view of the muscles underneath.)
Millodot, p. 195





Eye Pathologies:

Aged Related Macula Degeneration (AMD)

Aetiology: Degeneration and atrophy of the photoreceptors in the macula, thereby affecting the best visual acuity. Peripheral sight however is relative intact. Exact cause unknown. Age, race (caucasian), family history, smoking and gender (slight female predominance) has an influence. It is one of the leading causes of permanent low vision in the elderly.

Classification: AMD can be classified in two different forms:

1. The nonexudative “dry” form is the most common (90%). Develops slowly and can be difficult for the person to notice that he/she is losing his/her sight.
2. The severe form, exudative “wet” (10%) develops quickly. Fluids leak into the retina swelling the macula. One can lose his/her sight within a few months.

Treatment: A variety of advanced treatments are available in developed countries, such as Laser, the use of Antioxidants, Photo Dynamic Therapy and Transpupil Thermotherapy. Most however cannot be treated medically but can be helped by using a variety of magnifying devices. Sunglasses are helpful as well.

Cataract

The lens, in one or both eyes, becomes cloudy, gray/white usually associated with aging, trauma, congenital, and medicinal. Most cataracts are not visible to the casual observer until they become mature enough to cause blindness.

Aetiology: Aging, primary cause. Lens becomes opaque. Increase evidence implicating UV-radiation

Clinical Findings: Blurred vision, visual distortion.

Treatment: Surgical removal of the cloudy lens and either insertion of an Intra-Ocular Lens (IOL) or the use of strong plus lenses.



Child with congenital cataracts.
(Guatemala, 2004)



Diabetic Retinopathy

Accounts for almost one-fourth of blindness in the western world. Improved treatment that have lengthened the life of diabetics have actually resulted in the increase of patients developing diabetic retinopathy. Both eyes involved but to different degrees.

Aetiology: Eventual retinal changes in most people with a long history of diabetes. The juvenile diabetic develops a severe form of retinopathy within 20 years in 60-75% of cases even if under good control.

Clinical Findings: In the retina, punctate haemorrhages, microaneurysms and sharply defined white or yellow waxy exudates. Changes in blood glucose levels can cause refractive power fluctuations by as much as 3 or 4 diopters.

Treatment: Medicinal control (ie. Insulins, antibiotics, etc), laser photocoagulation.

Glaucoma

Aetiology: Too much pressure in the eye. Age (usually begins after 40), race (for blacks open-angle glaucoma three times more common and aggressive), family history and smoking has an influence. Here we will present two forms of glaucoma.

Acute Glaucoma:

Clinical Findings: Sudden increase intraocular pressure, headache, severe pain in the eye in question, halos and nausea and/or vomiting. The eyeball is hard to the touch. The eye red and the vision blurred. The sick eye has a larger pupil, ciliary injection.

Treatment: Quick treatment essential to reduce the intraocular pressure. First with pressure reducing drops or pills and later surgery should be undertaken (peripheral iridectomy). Without treatment blindness can result within a few days.

Chronic Glaucoma:

Clinical Findings: There is no pain to speak of. The eye pressure rises slowly with a consequent slow loss of vision, first peripheral and then central in both eyes. Depending on how long the patient has been afflicted, there will be changes in the optic disk and the visual field.

Treatment: Again with drops to reduce the intraocular pressure and surgery should be undertaken (trabeculectomy, deep sclerectomy).




Onchocerciasis (River Blindness)

This disease is common in Africa, Central America and northern South America.



BLACK FLY

actual size → 

Aetiology: When hump-backed black flies stick a person, a tiny worm is injected into the bloodstream.

Clinical Findings: Several months after being infected, 3-6 painless lumps, 2-3 cm. in size, begin to appear under the skin. In Latin America the lumps appear mostly on the head and upper body, in Africa, on the lower body and thighs. An allergic reaction to the worms may cause severe itching and the skin become thick, dark and scaly. The eyes will become red and tearful and the cornea dull and pitted. Blindness will result because of corneal scarring, cataract, glaucoma or other problems.

Treatment: The disease is preventable by eliminating the insect and individual protection by screening. Early medical treatment can prevent blindness. Antihistamines help reduce the itching and early removal of the lumps diminishes the number of worms.

Trachoma

A chronic form of conjunctivitis and one of the main causes of blindness in the world.

Aetiology: Chlamydia Trachomatis. Spread by direct contact or by flies. Common among poor people living in crowded, dirty conditions.

Clinical Findings: To identify the presence of endemic trachoma in a group, a substantial number of those afflicted must have at least two of the following signs:

1. Five or more follicles on the inside of the upper eyelid.
2. Typical conjunctival scarring of the upper tarsal conjunctiva.
3. Limbal follicles.
4. Pannus (blood vessels evenly distributed onto the upper limbus of the cornea). (The combination of both follicles and pannus is almost certainly trachoma.!!!)

Begins with red, teary eyes like a typical bacterial conjunctivitis which later develops into conjunctival scars. These scars (along with a defective tear film) can in turn make the eyelids thick and may keep them from opening all the way, or they may turn the eyelashes inwards scratching the cornea and causing blindness.

Treatment: Medicinal (Tetracycline, ...). Surgical correction of intumed eyelashes.



Appendices
Screening Protocol

(Copy half as many copies as needed and cut in two.)

<p>Name: Date:</p> <p>Address:</p> <p>Comments:</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><u>Screening Protocol</u></p> <p>Age:</p> <p>Gender: ✓ M: <input type="checkbox"/> F: <input type="checkbox"/></p> <p>Can read? ✓ Yes: <input type="checkbox"/> No: <input type="checkbox"/></p> <hr/> <p>Strabismus: ✓ Yes: <input type="checkbox"/> No: <input type="checkbox"/></p>
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<p>Name: Date:</p> <p>Address:</p> <p>Comments:</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><u>Screening Protocol</u></p> <p>Age:</p> <p>Gender: ✓ M: <input type="checkbox"/> F: <input type="checkbox"/></p> <p>Can read? ✓ Yes: <input type="checkbox"/> No: <input type="checkbox"/></p> <hr/> <p>Strabismus: ✓ Yes: <input type="checkbox"/> No: <input type="checkbox"/></p>
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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

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8p

Е Ш М Э Е М Е Ш Э М

5p





Vocabulary:

Accommodation: (acc)	Adjustment of the dioptric power of the eye by the change of the shape of the lens.
Accommodation Amplitude: (amp acc)	The maximum amount of accommodation which the eye can exert in dioptries.
Addition (ADD):	The difference in spherical power between the distance and near corrections.
Ametropia:	Anomaly of the refractive state of the eye in which with relaxed accommodation, the image of objects at infinity is not formed on the retina. Thus vision may be blurred. The ametropias are: Astigmatism, Hypermetropia and Myopia.
Anamnes:	Case history of the patient.
Asthenopia:	Term used to describe any diffused symptoms associated with the eyes, i.e. headaches, tired eyes, blurred vision ...
Astigmatism:	A condition of refraction in which the image of a point object is not a single point but two focal lines at different distances from the optical system.
Atrophy:	Degeneration, wasting away.
Binocular (vision):	Condition in which both eyes produce a fused vision.
Ciliary injection:	Redness around the limbus (corneal edge) of the eye.
Conjunctivitis:	Inflammation of the conjunctiva.
Convergens:	Movement of the eyes inwards or towards each other.
Dioptré: (D)	A unit to evaluate the refractive power of a lens or of an optical system. (The reciprocal of the focal length in metres.) i.e. +2,0 D, -3,25 D.
Divergens:	Movement of the eyes turning away or from each other.
Emmetropia: (E)	The person, without effort, that is with relaxed accommodation, has maximal distance visual acuity.



Endemic:	Commonly found in a particular country, area or group of people. (<i>The eye disease is endemic in Sweden.</i>)
Epicanthus:	A fold of skin from the upper to the lower eyelid partially covering the inner nasal part of the sclera of the eye.
Esotropia:	Convergent strabismus in which the deviating eye turns inward. (Most common type of cross-eyed in children.)
Exotropia:	Divergent squint in which the deviating eye turns outward.
Exudate:	A liquid which has been discharged through the tissues to the surface or into a cavity.
Eye Charts:	Charts with different symbols, (ie "A, B, C", "HTOV", "E"), designed to test visual acuity.
Follicles:	Pinkish gray lumps as a result of chronic inflammation.
Haemorrhage:	The loss of blood from any part of the vascular system.
Heterotropia:	Strabismus. Squint (cross-eyed).
Hypermetropia:(H)	Far sighted, Long sighted, Hyperopia. Refractive condition of the eye in which distant objects are focused behind the retina when the acc. is relaxed. (Corrects with plus lenses.)
Illiteracy:	The inability to read or write.
Iridectomy:	The surgical removal of part of the iris.
Lens Box:	Plus, minus and astigmatic lenses to place on test frames for examining the eyes.
Literacy:	The ability to read and write.
Microaneurysm:	Tiny red spots in the wall of a blood vessel commonly found in diabetic retinopathy.
Minus Lenses:	Lenses with minus dioptré powers to compensate myopia.
Monocular (vision):	Pertaining to the vision of one eye only.



Multifocals:	A lens with various dioptric powers such as a bifocal, trifocal or a progressive lens.
Myopia: (M)	Nearsighted, Short sighted. Refractive condition of the eye in which the images of distant objects are focused in front of the retina when the accommodation is relaxed. Distance vision is blurred. (Corrects with minus lenses.)
Oedema (Edema):	The presence of an excessive amount of fluid in or around cells, tissues or serous cavities of the body.
Occluder:	An object (ie. a piece of paper, carton) placed before an eye to block the vision.
Oculus Dexter (OD):	Right eye (latin).
Oculus Sinister (OS):	Left eye (latin).
Oculi Uterque (OU):	Both eyes (latin). Also Oculi uniter or Oculi Ambo = (OA).
Ophthalmologist:	Eye Doctor. Medical eye specialist. Oculist.
Optometrist:	Ophthalmic optician. The primary healthcare practitioner of the eye and visual system. Provides eye and vision care, which includes refraction, dispensing etc.
Orthophoria:	Phoria. The case when both visual axes are directed towards the point of binocular fixation in the absence of an adequate stimulus to fusion. It represents a perfect balance of the oculomotor system.
Pannus:	Many tiny new blood vessels covering the upper part of the cornea, or superficial vascularization. Caused by chronic upper entropion and trichiasis.
Photocoagulation:	A laser beam changes blood and tissue from a fluid to a clotted state in the treatment of retinal diseases.
Photophobia:	Abnormal intolerance of light.



Photoreceptors:	A receptor, like the rods and cones of the retina, which is stimulated by light.
Plus Lenses:	Lenses with plus dioptré powers to compensate hypermetropia.
Presbyopia:	A refractive condition in which the accommodative ability of the eye is insufficient for near vision, due to ageing. Usually and ADD is needed for distance correction or just reading eyeglasses.
Progressive:	A spectacle lens having a gradual, progressive change in power.
Refraction:	The measurement and correction of the refractive error of the eyes. Also the change in direction of the path of light as it passes obliquely from one medium to another having a different index of refraction.
Squint:	Def. 1 = To look at something with the eyes half shut. Def. 2 = Heterotropia, Strabismus, To be cross-eyed.
Strabismus:	Squint (cross-eyed), Heterotropia. The condition in which the lines of sight of the two eyes are not directed towards the same fixation point when the subject is actively fixating an object.
Trial frames:	Spectacle frames for testing vision by placing plus, minus or astigmatic lenses in it.
Vision, Low:	Vision which is below normal even after correction by conventional lenses. Low vision aids (LVA) are often needed.
Visual Acuity:	The measurement of the capacity for seeing an object.
Visus:	
(Habitual, Aided)	The visual acuity with the actual eyeglasses or lenses on.
(Free, Unaided)	The visual acuity without any eyeglasses or lenses on.



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.
- Eskridge, 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,
113-122, Tika Läkemedel och Studentlitteratur.
- Millodot, Michel: Dictionary of Optometry and Visual Science, © 2002,
Fifth edition B-H.
- Promadmaso: Refraksjonsmanual, april 1999, Högskolen 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.

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VFA optometrist at work in Tanzania, 2004.



VFA assistants at work in Peru, 2002.

VFA has since 1995 done about 3 trips per year. More than 25 000 of the poor have been attended of which 70% have been women. An eye-exam and a pair of eyeglasses would cost them about 3 month wages – an impossibility for many to pay.

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What does VFA do?

VFA provides free eye-exams for the poor in developing countries who cannot afford to visit an optometrist. We distribute very good, used eyeglasses which have been checked, washed, adjusted and measured by assistants and optometrists in Sweden and Norway.

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