



Lions Clubs International



Community Eye Screening For Children



LIONS KIDSIGHT USA TRAINING MANUAL

www.LionsKidSightUSA.org

LIONS KIDSIGHT USA FOUNDATION TRAINING MANUAL

CHAPTER ONE:

Lions KidSight U.S.A. Foundation Mission Statement

Our mission is to ensure all children have the opportunity to receive vision screening by Lions Clubs and to facilitate necessary follow-up care, concentrating on the ages 6 months to 6 years, **to find those children with the potential for Amblyopia and those with refractive errors needing eyeglasses to see clearly** because every child deserves to learn and see the world clearly **and succeed in school and society.**

Overview of Why Vision Screening is Important

According to educational and vision experts, 80% of learning is visual. So if a child can't see well, he can't learn well. It is estimated that more than 40 percent of the brain is devoted to visual function (Dutton, 2006, pg. 4).¹

Yet, most young children don't get their vision screened until after age 5 when they have problems learning or paying attention in school. By then, it may already be too late. Unless vision problems associated with amblyopia [lazy eye] are detected early and corrected, they risk becoming permanent by age 7.

Approximately 5% of all children in this age group will have amblyopia, a treatable disorder that can result in permanently reduced vision when not addressed by an early age. The screening devices detect risk factors for amblyopia, such as strabismus (eyes that cross or wander out), refractive errors (the need for eyeglasses) and unequal vision between the two eyes, and potentially even more serious issues such as cataracts and eye cancer.

Lions KidSight USA suggests Lions perform vision screening with a concentration on children 6 months to 6 years due to the need for early identification of risk factors for amblyopia, but that screening up through grade 12 is acceptable and recommended.

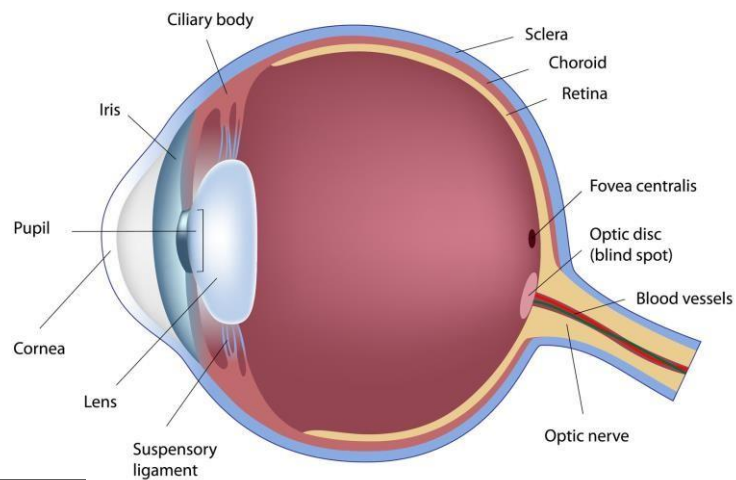
It is very important to understand that the "Gold Standard" for eye care is a comprehensive eye examination with a dilated pupil (drops) by an optometrist or ophthalmologist. Vision screening is a public health process designed to identify those children with risk factors which need to be examined by a doctor. It is an attempt to get as many of children in need of professional care as possible into the eye care system.

Do not screen adults. The screening devices do not test for adult eye disease such as glaucoma, diabetic retinopathy, macular degeneration, or any of the many conditions for which adults are at risk.

Basic definitions of medical terms associated with the screening results

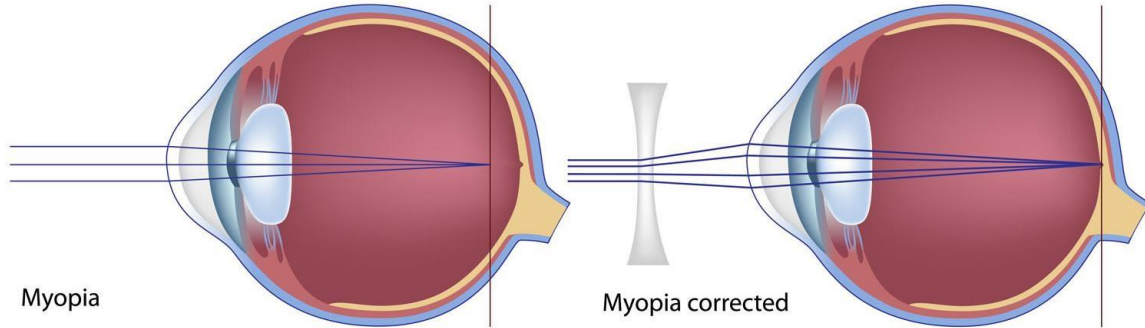
Diagram of Human Eye

Human Eye Anatomy

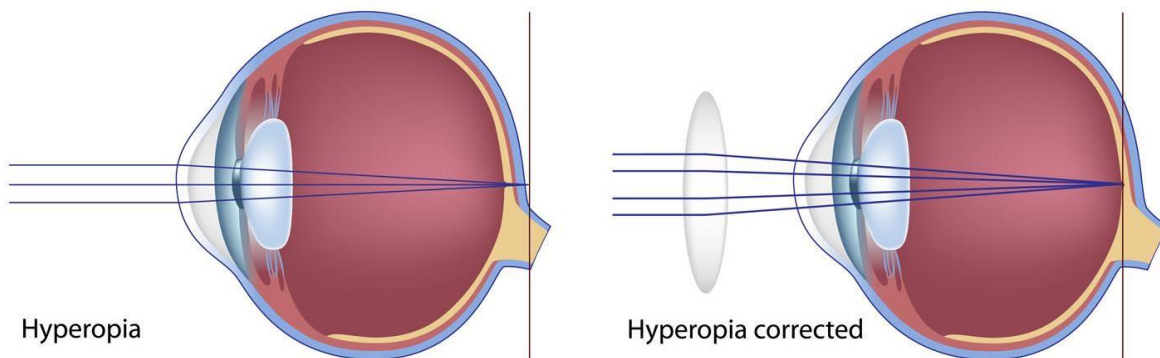


¹ Dutton, G.N., McKillops, E. C., & Saidkasimova, S. (2006). *British Journal of Ophthalmology*, 90(8), 932-933. Dutton, G.N. (2003). *Cognitive vision: Its disorders and differential diagnosis in adults and children*. *Knowing where and what things are*. *Eye*, 17, 289-304.

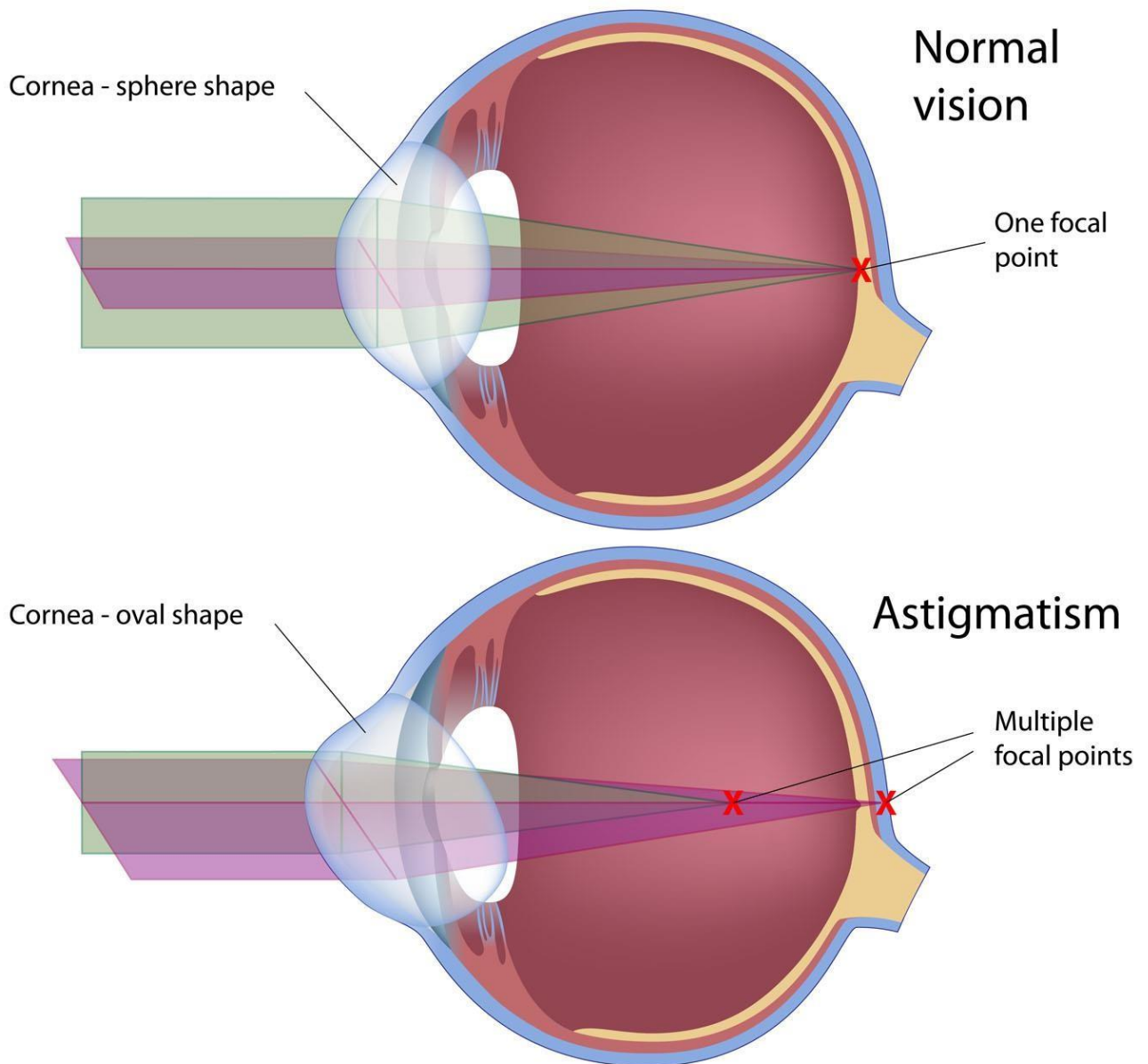
Myopia – [Near Sighted] The eye is too powerful for its length. Light is focused to a point in front of the retina. This creates symptom of seeing poorly at distance and more clearly at near. The higher the myopia the closer things need to be held to be seen clearly.



Hyperopia – [Far sighted] The eye is not powerful enough for its length. Light is focused to a point behind the retina. The child may be able to “refocus” the eye, adding power to the system, using the internal focusing muscle and lens to compensate for the hyperopia. However, this causes the symptom of having to work hard to see at any distance (but may still have good 20/20 vision at distance). If hyperopia is very high it will be too hard for the child to overcome and cause blurry vision at all distances. In lower to moderate hyperopia the child may have the symptom of seeing fairly well at distance (but working hard at it) but being blurry at near. In hyperopia children will experience tired eyes and difficulty maintaining focus and concentration when doing detailed visual tasks. It may cause behavior problems.



Astigmatism – The eye has two focus points rather than the usual one. Each point may be either myopic or hyperopic, so any combination of the two may be present. The amount of astigmatism is defined by the spread between the focus points. Since there isn't a single point of light to be resolved on the retina, vision will not be perfectly clear at any distance. The child may attempt to achieve the best possible vision by "refocusing" the eye, adding power to the system, using the internal focusing muscle and lens to compensate for the astigmatism. Just like in hyperopia, children will experience tired eyes and difficulty maintaining focus and concentration when doing detailed tasks.



Anisometropia - A significant difference between the refractive power (eyeglasses prescription) between the eyes. This creates a situation where the brain will choose to see out of the eye with the least refractive error and ignore the other eye. If not treated early the eye that is ignored will not see well throughout life.

Strabismus – Misaligned eyes. One eye turns in, out, up or down. The other eye points properly.



Anisocoria – Unequal pupil size more than 0.4 mm. About 20% of population has this, but it could mean serious neurologic problems – especially if it is 1 mm or more difference.



Ptosis – Lid droop. Usually one lid significantly lower than the other. May indicate serious neurologic problems. May have significant systemic implications.



Cataract – When the lens in the eye is cloudy reducing the light entering the eye and distorting the image.



Know and understand the statistics regarding Amblyopia risk factors

The National Eye Institute defines Amblyopia as follows:

“Amblyopia is the medical term used when the vision of one eye is reduced because it fails to work properly with the brain. The eye itself looks normal, but for various reasons the brain favors the other eye. This condition is also sometimes called lazy eye.” **It is a neurological condition resulting from poor stimulation and development of the brain cells responsible for the vision of one or both of the eyes. Most of the time neither parents nor the child notice any symptoms when amblyopia is present.**

2-3% of the population have risk factors for Amblyopia. The lay person term for Amblyopia is “*Lazy Eye*”. It is caused by any condition which causes one eye to not see as well as the other. The brain “learns” to see out of the better eye and ignores the poorer eye. This can be caused by one eye having a much higher glasses prescription than the other (Anisometropia), Strabismus, or in rare cases juvenile cataract.

If the risk factors for the development of Amblyopia are not detected, by age 6 *and treated*, by age 7, the chance of successful treatment greatly diminish. Treatment may include but is not limited to correcting the refractive error with glasses, patching, blurring one eye with an eye drop, vision exercises, or surgery. Beyond the age of 7 treatment success is limited but is usually attempted. A recent National Institutes of Health (NIH) study confirmed that SOME improvement in vision can be attained with amblyopia therapy initiated in younger teenagers (through age 14 years). However, better treatment success is achieved when treatment starts early.²

CHAPTER TWO: HOW TO SET UP A PROGRAM

Basic understanding of HIPAA and other privacy concerns

The Health Insurance Portability and Accountability Act – HIPAA- Generally refers to the Federal Law governing patient privacy. Lions, in doing vision screening, are not actually conducting medical exams resulting in a diagnosis; we are doing *screening* resulting in a referral when necessary. Therefore, our HIPAA exposure is somewhat limited. However, we still need to be totally aware of our responsibility to protect our subjects’ privacy.

- We should NOT include any children’s or family’s names or addresses in any discussion of the screening results.
- Parents/guardians should sign permission forms allowing their child to be screened.
- The permission form should have an “opt out” check box next to a statement allowing authorized screening personnel to contact the parent/guardian to determine if the child needing a referral actually received professional care. If the “opt out” box is checked no contact can be made.
- All records having any names on them need to be maintained in a strictly confidential manner for the period of time dictated by state law and then shredded during disposal.
- Any transmission of screening data should be done without inclusion of names or addresses.

Use of parental permission forms

As indicated above a parent/guardian should sign a consent form allowing their child to be screened. This form should clearly indicate the following:

- A statement that the procedure is non-invasive (doesn’t touch the child).
- A statement that the screening is not a substitute for a comprehensive eye examination by an eye doctor.
- A statement that since the procedure is a screening there will be a certain number of false positive and false negative results which may result in a referral when the child is “fine” or the procedure

may not detect a problem a child has. **A comprehensive exam by a doctor does not always result in an eyeglass prescription.** A doctor may choose to “watch” a condition to see if it progresses.

- A clear statement that if the parent/guardian feels the child has a problem they should have the child examined by an eye doctor regardless of the results of the screening.
- An “opt out” check box next to a statement allowing authorized screening personnel to contact the parent/guardian to determine if the child needing a referral actually received professional care. If the “opt out” box is checked no contact can be made.

If parent/guardian permission is **not** obtained the child should **not** be screened.

State and local requirements

Determine from the local school authorities the requirements that exist for state and local regulations and laws relating to interactions with children in the school system. Some jurisdictions require background checks and, possibly, a TB skin test. Please review and comply with the regulations in your area.

Laws may be different for the public school system child vision screening as opposed to screenings in private day care centers for children under six years of age.

How to interact with children safely and effectively

- Make it “FUN”.
- **Never** be alone in a room or confined space with a child.
- Have a teacher, school nurse, or teacher’s aid help line the children up and keep them occupied until it is their turn.
- Try not to have the waiting children interact with the child being tested.
- Don’t have too many lined up at one time.
- Smile at the children all the time.
- Do not show frustration if a child is not cooperating. Retest on another day if necessary
- Always tell the children they “did a great job”.
- Do not touch children. If they need direction in standing/sitting in the proper location by touching their shoulder have the school personnel do this. Do not do this yourself.
- Give clear instructions as to where the child should look. Again, make it a game. When the
 - screening results are obtained tell the child “you win”.
- If you give out stickers for the child to wear after the screening you should hand it to them so the child can place it on him or herself.
- You may hand the sticker to the school personnel for placement. Do not place it on the child yourself.

How to reach out to schools and agencies to offer screening services

Lions should reach out to community agencies that work with children to help organize a vision screening:

- Local Head Start programs
- Kindergartens
- Nursery schools
- Religious schools
- Day care centers
- Other organized children's programs with a chief administrator

Speak with the administrator about the needs and benefits of doing children's vision screenings – especially for ages 6 months to 6 years.

Refer them to the National Institutes of Health, American Academy of Optometry, American Academy of Ophthalmology and American Academy of Pediatrics which have all published peer reviewed papers in support of children's vision screening. Links to these papers are on the Lions KidSight USA website.

Offer Lions services in conducting these screenings, explaining that the methods used are scientifically validated by professional third parties. Once the agency agrees, schedule a time to do the screening. Invite the chief administrator to be present at the screening.

CHAPTER THREE PERFORMING A SCREENING:

Understanding of the proper environment for accurate screening

The vision screening should be done in a room or location with controllable light (to adjust the brightness) and without direct light shining into the screening device. DO NOT screen children in a small dark room. It is always best to have one of the agency's staff present during the entire screening process. One Lion should be assigned to operate the screener and, if necessary, the printer (for screening results). At a minimum, there should be one Lion assigned to organize the waiting line and collect the demographic information on the child screened and another Lion should help children get into the proper place in front of the camera when it's their turn to be screened. Agency staff may be a great help in this process. So, the *ideal number* of Lions needed is 3, but it may be possible to perform screening with less.

Adjust your screening instrument to the correct sensitivity/specificity setting

- It is important to set your instrument to a **specificity** of 95% and a **sensitivity** of 80%. Refer to manufacturers' instructions to do this.
- These are the settings recommended by the clinical/scientific organizations which have studied children's vision screening.
- If the **sensitivity is set too high** you will have far too many over referrals and the families and agencies you are working with will be unhappy.
- If the **sensitivity is set too low** many children will pass the screening who shouldn't have passed
- A **95% specificity means** that 95% of those you refer actually needed professional services – so they were "good" referrals.

- An **80% sensitivity** means that of those you screened who actually needed to be referred you were able to detect 80% of them. This means that 20% who should have been referred but were still “passed” by the instrument.
- If you are screening a special population – special needs children, certain demographic populations, etc.
- –it is possible for this data to be dramatically different. Referral rates up to 15%-20%, and higher, may be explained due to your working with such a skewed population of children.

Be completely knowledgeable about the instrument operation

Each screening instrument has its own methods of operation. Each of the modern machines will produce excellent, scientifically validated results. You should completely familiarize yourself with how *your* machine should be used so you will always perform accurate screenings. Our corporate partners – PlusoptiX and Welch Allyn Spot – have produced excellent training material which can be found on the Lions KidSight USA website, and in the appendix of this document. Please study this information and practice with your camera so you will be totally proficient on “screening day”.

Modern screening devices work by projecting harmless, low energy infra-red light into the eye and measure the light reflected back out into the device.

Children are referred based on an age related threshold. This means that the reading at which the child is referred or passed will vary with the child’s age group. So, for instance, at age 9-72 months the referral threshold for hyperopia is +2.50 but for the older ages of 73 -120 months the threshold is +2.00.

It is also important to realize that with any instrument based measurement there are certain tolerances in the results. In other words, if the “exact scientific reading” is + 6.00 the device may report +5.50 or +6.50 and still be performing well and “within tolerance. Therefore, a child, if screened more than once on the same day may pass one time and be referred on another. This is due to instrument tolerances and other variables. It is one of the reasons for the 80% sensitivity of the vision screening processes.

That said, when a referral is indicated retesting should not be performed the child should be referred.

Problem solving the screening process when the results are not what you expect

- Be sure the child’s pupils are at least **4mm** but not more than **8mm**. The device will indicate if the pupil is too large or too small. If necessary adjust the light brighter to achieve smaller pupils or darker to achieve larger pupils.
- If a child looks at the device and wiggles his/her toes the pupil may enlarge enough to obtain a good reading.
- Consider using a black umbrella or even sunglasses on those children with small pupils when you cannot dim the lights.
- Be sure there are no direct lights shining on the front of the camera.
- Be sure the camera is level and squarely pointed at the child’s eyes at exactly the same height of the eyes. If the camera is tilted up or down, or twisted right to left it will be difficult to obtain a good reading.
- Be sure neither you nor the child moves during the camera’s reading process. The child and you only need to be still for 1 second, but both of you must be still.

- Be sure the front of the camera is 1 meter (3.3 feet) from the child's eyes when conducting the screening. If the distance changes due to movement slowly rock forward or backward to achieve the correct distance. I sometimes helps to place paper "foot prints" on the floor where you want the child to stand. Or the child may sit in a chair. Remember you must hold the camera at the height of the child's eyes – do not point it down to them

Important - When screening a cooperative child the device indicates that a reading cannot be obtained the Lion should consider this an automatic referral.

Properly answer questions from parents, teachers, etc. about the screening results without diagnosing

- ✓ When you are asked why a child needs to be referred you cannot diagnose as you are not a doctor with a license to practice. The **only thing** you may say is that based on the national standards built into the machine the child needs to see an eye doctor for a complete evaluation. Do not enter into a debate on the merits of the screening.
- ✓ You may describe the national averages for sensitivity/specificity for which the camera is set
- ✓ Without indicating why a particular child failed the screening you may discuss the various conditions the camera detects and why they are important – Again **DO NOT** indicate why a child needs referral. This is diagnosing.

CHAPTER FOUR: TESTING FOLLOW-UP

4.1 FOLLOW-UP REQUIREMENTS OF A SCREENING PROGRAM

Have in place a system to efficiently accomplish follow up

Ensuring the children are referred is the most important aspect of screening. The goal is to have children in need receive a comprehensive eye exam. The referral form, ideally with an explanation of the screening process, should be given to the family. It is extremely important to follow up with the parent/guardian to ensure those referred get the professional care they need. This is generally accomplished via phone calls to the family. It is also generally accepted in the public health community that no more than 3 phone calls to a parent/guardian are indicated. The administrative decision becomes who will be responsible to make these calls.

The simplest model is to have the administrator/school nurse of the agency for which the Lions are doing the screening be responsible for ensuring proper follow up. It is, after all, their agency with their base of children they are responsible for, so asking them to do the phone calls is not unreasonable. The Lions Club can then call this administrator 4-8 weeks later to confirm the number of children who received professional care after the screening.

Another model would be for a Lion or Lions volunteer from the club to agree to make the calls. This puts a small burden on the club. However, since a "usual" referral rate is about 10% of those screened it represents only 10 contacts needed out of each 100 screenings completed. The Club or Zone could have a volunteer "Follow up Committee" whose assignment is to do the follow up and keep the records of the phone calls

Yet another model is to have a paid staff in a central location responsible for making the follow up calls throughout the multiple district or district. The advantage is that since this person is paid you will have a lot of control on the follow through of the process. The disadvantage is that it is expensive to maintain an office and pay staff.

4.2 ESTABLISHING A NETWORK OF DOCTORS

You should set up a network of doctors to examine those who are referred

The children who need referral are going to need to be examined by an eye doctor. It is considered best practice to visit the doctor's offices (appointments are best) and discuss the screening process with them. Explain the results and show them the screening report forms the instruments generate. Assure the doctors that the patients will be free to choose any doctor they wish to go to, but you wanted to let them know about the work you are doing. It is also good to invite them to attend a screening; and you should be available for any questions the doctors may have. A family which already has an eye doctor should be advised to make an appointment with that provider. Do not consistently refer to only one doctor, even if a significant discount is offered, as it may be seen as a conflict of interest. This is especially true if the doctor is a Lions member.

If your club is prepared to assist with financing comprehensive examinations and/or glasses, arrangements should be made with the doctors in your area and the agency for which you are screening should be informed of this possibility. It is strongly suggested that a one-to-one relationship with a particular provider be avoided. A list of local providers is preferable. If a club is planning to offer financial assistance, predetermined criteria for this assistance should be clearly written and followed.

CHAPTER FIVE: DATA MANAGEMENT

Maintain accurate data on the screenings you do

The club should record the global data, including the number screened and number referred, age of the children, the number of those who were referred who actually received professional care, and if at all possible the **doctor's** diagnosis. Remember names should not be attached to this data. It is just the raw scores that will be important. Lions KidSight USA will, very soon, have a national database in which we will collect all the

LKSUSA National Data Management Process

LKSUSA is developing a national data management system which will collect the appropriate vision screening data submitted by Lions. The target date for national rollout is early in the 2018-19 Lions year. The system will have both manual data entry into a cloud based collection point as well as electronic upload of screening data by those Lions who have the computer skills to accomplish this task. The manual data entry method will be easy for Lions to accomplish.

The data we will collect is:

- Number of children screened
- Number of children referred
- Age range of the children screened (age brackets will be provided)
- Screening Instrument used
- How many of those children referred actually went to the doctor

The last bullet will require the Lions to either call the agency administrator or the parent of the child 30-60 days after the screening in order to determine if the child had a comprehensive eye examination. The Lions should discuss in advance with the school administrators that they will be asking for this information. Parents, when signing the permission forms, have the opportunity to "opt out" of these calls. If the "opt out" box is blank it is understood that the parents are giving permission to be called. If, after the first call, the child has not yet had an exam, it is suggested that no more than 3 calls be made to obtain this information. If no determination is made it should be assumed the child did not receive an exam.

If during any of the calls a parent requests that no additional contact be made, Lions should respect this and cease making calls to that parent.

Lions will then be asked to reenter the database to update the “doctor visits” field.

Personal identifying information will not be collected by LKSUSA at any time. The data referred to above is aggregate information only.

As the data management system is rolled out LKSUSA will provide robust Lions training to make implementation of the system as smooth as possible.

Public Relations

Consider developing a community press release about your Lions KidSight USA screening projects to share your screening project with the community. You can include the number of children screened and referral rates, but you cannot mention children’s names or any personal information collected at the screening due to privacy issues.

Thank you for studying this manual. Lions KidSight USA is proud that you have joined us in helping the children of our community

APPENDIX THREE: TERMS AND DEFINITIONS

ANISOMETROPIA (Unequal focus)

This term refers to a difference in focus between the two eyes. In children, this can cause the brain to learn to see with only the eye easier to use, thus permanently reducing vision in the ignored eye (*amblyopia* – see below).

ASTIGMATISM (Curved focus)

This type of focus describes a curved and blurry image at both near and far.

HYPEROPIA (Farsightedness)

This eye is in focus beyond the farthest distance, making near vision difficult and in some cases making the eyes cross. High Hyperopia may cause blurry vision at all distances.

MYOPIA (Nearsightedness)

This eye can see up close, but it sees blurry at a distance. It usually (but not always) comes on with body growth, e.g., in the teen years.

CORNEAL REFLEXES (Alignment of the two eyes)

This refers to the *reflection* of light that lets an examiner or device measure how straight the eyes are when comparing one to the other.

ANISOCORIA (Unequal pupil size)

Pupils sizes usually only change with light, but one being larger or smaller may rarely suggest a brain problem.

STRABISMUS (Crossed or wall-eyes)

This word describes eyes that don't work together because they don't point the same direction all the time. In children, this can result in a 'lazy' eye that doesn't see well, or interfere with depth perception (3-D vision). This term is used whether they turn in or out.

AMBLYOPIA (Lazy Eye)

When the brain is not able to learn to see with an eye for any reason (see several reasons above), it becomes "lazy" in that the brain ignores it. Learning to see stops in later childhood, so it is vitally important to find all possible problems at the earliest age possible. There is no child too young for an examination or corrective measures.

NOTE: Although the Lions who perform childhood vision screenings are thoroughly trained they are NOT medical professionals, and the report generated is NOT a diagnosis. The KidSight vision screening referral suggests that a child *may* have a vision problem, and he/she should be taken to an optometrist or ophthalmologist for a complete examination.