

AN ABSTRACT OF THE THESIS OF

Belinda Liao for the degree of Honors Baccalaureate of Science in Biology presented on
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Abstract approved: _____
Barry Lawler

The Oregon Department of Education requires children to receive vision screening before entering elementary school, but does not require follow-up with an eye care professional after a failed screening. Whether such preventative vision care is effective at detecting children with vision problems was investigated through research from the American Optometric Association and similar resources. Oregon optometrists were also surveyed to obtain their opinions regarding the present state of preventative vision care in Oregon children. Results from the survey and published data concluded that an unmet need exists for preventative vision care in Oregon, specifically the need for comprehensive vision exams.

Key words: children, exam, optometrist, preventative, screening, vision

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Evaluating Preventative Vision Care in Oregon Children

by

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I understand that my project will become part of the permanent collection of Oregon State University, University Honors College. My signature below authorizes release of my project to any reader upon request.

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Evaluating Preventative Vision Care in Oregon Children

CHAPTER 1 – Introduction

My decision to pursue a career in optometry led to my employment as an optometric assistant. When I learned that my employer was also working as an advocate for a legislative bill requiring comprehensive vision exams for all children entering public schools in Oregon, I became curious regarding current state regulations and to what extent, if any, they were being employed and how useful they were.

After investigating, I found that Oregon has virtually no requirements regulating optical health of children ages five to six entering public schools for the first time. To determine the effect of this deficiency, I researched the value of early detection and comprehensive vision exams from national organizations; additionally, I surveyed all practicing optometrists in Oregon for their opinion of the state of eye and vision health of Oregon children. All statistics presented in this paper are from my survey, except where indicated.

This paper serves to educate the public of the need for such preventative vision care and the importance of early detection.

CHAPTER 2 – Preventative Vision Care Requirements

2.1. Varying Requirements by State

In 1999, Kentucky became the first state to legislate comprehensive vision exams for all children entering public schools. Since then, only Illinois and Missouri have also mandated that standard. Twelve other states have either enacted or enhanced their existing requirements to increase the number of children receiving these exams, but no national consensus exists for children's preventative vision care⁴.

According to the Centers for Disease Control and Prevention, two of three children in the United States do not receive any form of preventative vision care before entering elementary school. Yet, according to the Vision Council, impaired vision can “affect a child's cognitive, emotional, neurologic, and physical development by potentially limiting the range of experiences and kinds of information to which the child is exposed.”⁴

Regulations governing whether or not children are required or should receive comprehensive vision exams before entering public schools are currently inconsistent and generally lacking. The following table summarizes preventative vision care requirements for children organized by state:

Table 1. Preventative Vision Care Requirements by State³

| | Vision Screening | Exam |
|----------------|------------------|-------------------------------|
| Alabama | √ | |
| Alaska | √ | |
| Arizona | No requirement | |
| Arkansas | | After failed vision screening |
| California | √ | |
| Colorado | √ | |
| Connecticut | √ | |
| Delaware | √ | |
| Florida | √ | |
| Georgia | √ | |
| Hawaii | √ | |
| Idaho | No requirement | |
| Illinois | | √ |
| Indiana | √ | |
| Iowa | No requirement | |
| Kansas | √ | |
| Kentucky | | √ |
| Louisiana | √ | |
| Maine | √ | |
| Maryland | √ | |
| Massachusetts | | After failed vision screening |
| Michigan | √ | |
| Minnesota | √ | |
| Mississippi | √ | |
| Missouri | | √ |
| Montana | √ | |
| Nebraska | √ | |
| Nevada | No requirement | |
| New Hampshire | No requirement | |
| New Jersey | √ | |
| New Mexico | √ | |
| New York | √ | |
| North Carolina | | After failed vision screening |
| North Dakota | No requirement | |
| Ohio | √ | |
| Oklahoma | | After failed vision screening |
| Oregon | √ | |

(Table 1, Continued)

| | | |
|----------------|----------------|-------------------------------|
| Rhode Island | | After failed vision screening |
| South Carolina | No requirement | |
| South Dakota | No requirement | |
| Tennessee | √ | |
| Texas | √ | |
| Utah | | After failed vision screening |
| Vermont | √ | |
| Virginia | √ | |
| Washington | √ | |
| West Virginia | √ | |
| Wisconsin | No requirement | |
| Wyoming | √ | |

Nine states have no requirement of any sort, thirty-eight states require or suggest a vision screening, but only six require follow-up after a failed screening. Oregon is one of the states that does not require a comprehensive vision exam for children entering elementary school; nor does it require adequate follow-up after a failed screening.

2.2. Preventative Vision Care in Oregon

In 2003, the Oregon Department of Education updated its School Health Services Manual to address school vision screenings. Oregon Administrative Rule 581-022-0705 requires school districts to provide vision screenings that should be conducted under the direction of a school nurse who would oversee the training and monitoring of the activity, school staff, and parent volunteers. Children who do not pass are referred to the school nurse for a second screening, and, if they fail, are referred to a health care provider for evaluation. Results are shared with the child's parent or guardian, and it is the responsibility of the parent or guardian to secure and fund the visual evaluation.⁵

CHAPTER 3 – Vision Screenings Versus Comprehensive Vision Exams

3.1. Lack of Education

With no mandate in place for monitoring children's vision in Oregon, the number of children receiving annual eye exams can be only estimated. According to Oregon optometrists surveyed, approximately 20-30% of their patients are children. Respondents believe this estimate to be representative of all optometrists; it is agreed the number should be greater.

Lack of education among parents is the reason cited for the low numbers. Parents are not aware of the importance of these exams, and what preventative vision care should consist of.

3.2. Vision Screenings

Thirty-eight US states suggest or require vision screenings as a form of preventative care, and parents believe these screenings are effective and identical to comprehensive vision exams. However, a vision screening makes only general categorizations of examinees, and typically only tests for distance vision. Vision screenings are only meant to help identify children who may have undetected vision problems, and serve as a reference point for further evaluation by a trained eye care professional. These screenings are not equivalent to a comprehensive vision exam.⁶

While the intentions are admirable, vision screenings have many limitations. A major concern is the lack of standardization. Vision screenings may detect some individuals with vision problems, but they may miss more than they find.⁶

Table 2. Limitations of Vision Screenings⁶

| | Limitation |
|------------------------------|--|
| Limited Testing | <ul style="list-style-type: none"> • Many tests measure only distance vision. • No indication is provided of how well the eyes focus up close, work together. • No information is provided about the health of the eyes. |
| Untrained Personnel | <ul style="list-style-type: none"> • Vision screeners often have little training and lack knowledge needed to correctly assess screening results. |
| Inadequate Testing Equipment | <ul style="list-style-type: none"> • Scope of vision screening is limited by type of testing equipment available. • Factors such as room lighting, testing distances, maintenance of testing equipment can also affect test results. |

As with lack of test standards, no standard exists regarding administration of the screenings. In Oregon, vision screenings can be administered by school nurses and their trainees, but neither have been properly trained in optometry. Nurses, though healthcare providers, are, in reality, untrained for determining the optical health of a child. Nurses lack the education and clinical experience eye care professionals have been specifically trained for.

The appropriate equipment necessary to examine children is also absent at vision screenings. Even if optometrists were to administer a screening, the lack of equipment may result in an ineffective diagnosis. Vision screenings do not measure optical health,

vision perception, or use the Snellen chart; and according to the American Foundation for Vision Awareness, vision screenings identify only 5% of vision problems in children.³

3.3. Comprehensive Vision Exams

Comprehensive vision exams are much more thorough than vision screenings, consisting of tests and observations that measure not only an individual's vision, but also the health of the eye. By law, a comprehensive vision exam can only be performed within the scope of practice by an optometrist or ophthalmologist – not by anyone else in any other location⁶. Unlike vision screenings, comprehensive vision exams have minimum standards that must be met. Specifically, the American Optometric Association recommends the minimum standard of care to consist of the following tests:

Table 3. Minimum Standard of Care of Comprehensive Vision Examinations¹

| | Purpose |
|---|---|
| Patient History | <ul style="list-style-type: none"> • Symptoms the patient may be experiencing • General health problems • Medications taken • Occupational or environmental conditions that may affect vision • Previous eye or health conditions • Family history of eye or health conditions |
| Visual Acuity | <ul style="list-style-type: none"> • Clarity of vision in each eye |
| Preliminary Tests | <ul style="list-style-type: none"> • Evaluation of specific aspects of visual function and eye health such as: <ul style="list-style-type: none"> ○ Depth perception ○ Color vision ○ Eye muscle movements ○ Peripheral or side vision ○ Response of pupils to light |
| Keratometry | <ul style="list-style-type: none"> • Measurement of curvature of cornea by focusing circle of light on cornea and measuring its reflection (helps determine proper fit for contact lenses) |
| Refraction | <ul style="list-style-type: none"> • Determination of appropriate lens power needed to compensate for any refractive error |
| Eye Focusing, Teaming, and Movement Testing | <ul style="list-style-type: none"> • Determination of how well the eyes focus, move, and work together |
| Eye Health Evaluation | <ul style="list-style-type: none"> • External evaluation of cornea, eyelids, conjunctiva, surrounding eye tissues • Internal evaluation of lens, retina, posterior section of eye • Tonometry – measurement of pressure within eye |
| Supplemental Testing | <ul style="list-style-type: none"> • Additional testing based on results of previous tests to confirm or rule out possible problems, clarify uncertain findings, or provide more in-depth assessment |

After the examination has been completed, an optometrist assesses and evaluates the results of testing to diagnose and develop a treatment plan. The patient, and parents if applicable, is informed of the nature of any visual or eye health problems, explained the available treatment options, and referred to a specialist if needed.

3.4. Importance of Differentiating Exams from Screenings

The confusion between vision screenings and comprehensive vision exams is problematic because it can lead a patient to have a false sense of security. Patients who “pass” a vision screening may actually have undetected problems that may lead to further delay of a comprehensive vision exam and treatment. A false sense of panic can also be created if patients who “fail” vision screenings are referred for further evaluation, but are found to have no eye or vision problems at all.

CHAPTER 4 – Most Common Vision Problems in Children

4.1. Amblyopia

Amblyopia, more commonly known as lazy eye, affects 2-3% of the general population and refers to reduced or loss of vision in an otherwise healthy eye. In people with amblyopia, the development of their vision will be impaired because their eyes cannot focus together or maintain proper alignment. One eye will become stronger, and the brain will ignore information from the weaker eye, which could lead to the weaker eye not developing properly. If this suppression persists, the weaker eye may eventually become useless.⁷

With early diagnosis and treatment, amblyopia can be treated, and the vision in the weaker eye can be restored. Treatment includes patching the eye or using eye drops, and should be employed as early as possible to increase effectiveness.⁷

4.2. Astigmatism

Individuals with astigmatism have an irregular curve of the cornea. The result is an eye that cannot focus light properly on the retina. Astigmatism results in blurred vision at all distances, but corrective lenses can help focus light properly and eliminate the blurriness.⁷

4.3. Hyperopia

Hyperopia, or farsightedness, refers to an eyeball too short for the normal focusing power of the eye. In children, the optical lens is able to accommodate for this error and provide what appears to be clear vision for both near and far, but this accommodation does take effort and can cause fatigue and strabismus (crossed eyes).⁷

4.4. Myopia

Myopia, or nearsightedness, refers to an eyeball too long for the focusing power of the eye. The result is distant objects appearing blurred.⁷

4.5. Strabismus

Approximately 2% of American children in the United States have strabismus, a condition in which eyes are not properly aligned. Eye muscles unable to work together cause strabismus. The deviation of the eyes can be consistent, may vary day-to-day, develop over a period of years, or as a result of illness or accident.⁷

Table 4. Treatment of Strabismus⁷

| Treatment | Description |
|-------------------|---|
| Corrective lenses | <ul style="list-style-type: none"> Improve focusing, redirect line of sight and enable eyes to straighten |
| Medication | <ul style="list-style-type: none"> Includes eye drops or ointments Selectively weaken overactive eye muscles with injected medication |
| Surgery | <ul style="list-style-type: none"> Can be used if nonsurgical means are not successful |
| Eye exercise | <ul style="list-style-type: none"> May be recommended either before or after surgery |

If a child is unable to see straight or has deviations in the eyes, he or she should see an eye care professional for examination because, if left untreated, strabismus can cause amblyopia. A common misconception is that children will grow out of strabismus, but this is not true; treatment is needed.⁷

CHAPTER 5 – Effects of Vision Problems in Children

Aside from diagnosed visual problems, Oregon optometrists were asked how children were most affected in aspects of daily life dependent on normal vision. Ninety-eight percent believe that children with visual handicaps would suffer educationally. Their inability to see a blackboard or read a book could lead parents and teachers to assume the child to be mentally slow and unable to keep up with classmates. As a result, he or she could be held back in the education system. Should the vision problem remain unaddressed, the child could suffer socially and emotionally due to embarrassment or depression.

Another shortcoming of undiagnosed vision problems could be a child's participation in sports and community involvement. Finally, the mental, emotional, and physical consequences of undiagnosed vision problems can also lead to juvenile delinquency.⁹

With comprehensive vision exams, however, a child's optical well-being can be improved and allow for success both in and out of school.

CHAPTER 6 – Importance of Early Detection

Oregon optometrists agree that for early detection to be successful at identifying children with visual handicaps, comprehensive vision examinations must be performed. Vision screenings are meant to detect children with possible vision impairment and refer them for follow-up, but a majority of Oregon optometrists believe children who fail screenings do not receive comprehensive visit follow-ups. This failure leads the optometrists to believe that vision loss in up to 10% of their patients could have been prevented through early detection.

While children may recognize or feel they have problems with their eyes, survey respondents believe they will actively seek help from a parent or guardian only 21-50% of the time. A child may refrain from telling a parent or guardian because they may be embarrassed or do not want to wear glasses. Likewise, children who do not realize they have vision problems will refrain from actively seeking help because their vision has not been checked and, therefore, they assume their vision is normal.

Children cannot be relied on to ensure their own ocular and visual health. It is the duty of the parent or guardian to ensure the optical health of their child. Some warning signs that a child may have vision problems include:⁷

- Turning or tilting of the head
- Disinterest in close work (e.g. coloring, reading...)

- Eye pain
- Eye redness, or crusting of the eye lids or lashes
- Frequent headaches
- Frequent rubbing or tearing of the eyes
- Inability to see the blackboard/copy notes from the blackboard
- One or both eyes turning in or out, up or down
- Reversal of words or letters
- Sitting abnormally close to the television/complaining if moved back to normal viewing distance
- Squinting

CHAPTER 7 – Programs Currently Available

7.1. Vision Tests Applicable Both to Adults and Children

Children are examined by a pediatrician when a parent feels they may be having an issue; however, parents do not think to have their children's eyes examined.

Only 14% of American children under the age of six have had a comprehensive vision exam, yet vision disorders are the fourth most common disability and the most prevalent handicapping condition during childhood.² According to Oregon optometrists, this low statistic can again be credited to lack of education. Parents may also assume the tests performed on adults cannot be performed on children; but, in reality, all tests performed on adults can be effectively performed on infants and children.

7.2. Vision Development in Infants

Early detection is the best form of prevention, and optometrists emphasize the importance of examining a child's eyes within the first twelve months of life. An early exam allows optometrists to determine whether proper development of the eye is occurring. As infants develop, so does their vision:²

Table 5. Milestones of Vision Development in Infants²

| Age | Milestone |
|--------------|---|
| By 3 Months | <ul style="list-style-type: none"> • See objects approximately one foot away • Follow moving objects • Reach for things |
| By 6 Months | <ul style="list-style-type: none"> • Develop eye movement • Develop eye/body coordination skills • Focus both eyes equally |
| By 9 Months | <ul style="list-style-type: none"> • Develop eye/body coordination skills further • Eye contact begins to replace physical contact |
| By 12 Months | <ul style="list-style-type: none"> • Judge distances with both eyes |

7.3. InfantSEE®

The cost of comprehensive vision exams may discourage parents to wait until their children have vision problems before seeing an eye care professional. However, by the time a problem becomes apparent, treatment may be too late. To encourage parents to take their infants in for a vision exam, participating doctors provide InfantSEE® Assessments at no cost.

InfantSEE® Assessments are provided by InfantSEE®, a public health program sponsored by the American Optometric Association Foundation. Under this program, participating optometrists provide eye and vision assessments for infants twelve months and younger regardless of family income or insurance coverage.²

Significant risk factors for eye and vision disorders are often not detectable by base-level infant screenings performed by pediatricians. InfantSEE® assessments complement these eye screenings and are recommended for infants between the ages of six to twelve months to determine healthy development of vision.²

Though infants cannot verbalize symptoms, and though risk factors for many eye conditions have no physical signs, optometrists have the instruments and resources to effectively assess optical health. The following table summarizes how InfantSEE® assessments may be conducted:²

Table 6. InfantSEE® Tests and Methods²

| Test | Condition Tested For | How Tested |
|---|--|---|
| Visual Acuity, Refractive Status | <ul style="list-style-type: none"> • Nearsightedness • Farsightedness • Amblyopia | <ul style="list-style-type: none"> • Tests to ensure infant can fix eyes on object and follow it. • Gray cards with different sized stripes/pictures determine what baby prefers to look at and at what distances. • Lens and light from hand-held instruments assess how eyes respond to targets. |
| Ocular Motility, Alignment, and Binocular Potential | <ul style="list-style-type: none"> • Strabismus • Eye coordination | <ul style="list-style-type: none"> • Penlights, finger puppets/toys test eye's ability to move. • Penlights gauge eye alignment. • 3D glasses and pictures determine depth perception. |
| Overall Eye Health | <ul style="list-style-type: none"> • External structure • Pupil function • Internal structure | <ul style="list-style-type: none"> • Assess external structure with microscope. • Assess internal structure/health with dilation of pupils. |

Parents are debriefed after an assessment, and results may be sent to the infant's pediatrician or other appropriate professionals. In most cases, some degree of refractive condition is found that does not require intervention because the child will grow out of it.

Informing parents is the first step in prevention, and educating parents of warning signs that may signal vision and eye problems in a child enhances this preventative approach.

CHAPTER 8 – The Future of Children’s Vision Care in Oregon

8.1. House Bill 2060

The Oregon State Legislature’s House Committee reviewed House Bill (HB) 2060 on January 26, 2009. HB 2060 directs the Department of Education to conduct a study and develop a model program to provide vision screenings for public school students. Current Oregon legislation requires vision screenings for children attending public schools, but no standardization is outlined. HB 2060 would develop a model program and provide standardized vision screenings. However, as of Fall 2009, no progress has been made.⁴

HB 2060 did not gain the support from the public or eye care professionals because, even if were to pass, vision screenings would still not be a sufficient method of early detection, and children with vision problems could still be missed.⁸

8.2. Obstacles

The cost of a comprehensive vision exam is the biggest obstacle in this issue. InfantSEE® Assessments are available at no cost, but are only directed at children less than 12 months of age. Requiring children to have comprehensive vision exams before entering public schools may frustrate families that cannot afford a vision exam; however, eye care professionals believe it is a good investment in the long-run.¹⁰

8.3. Vision Coverage

The preventative vision care program in Kentucky originally designated \$150,000 in annual funds to provide uninsured children and children unable to obtain financial aid with comprehensive eye exams. Only 141 exams needed to be financed with the allotted funds, but one in seven children examined were found to have vision problems needing correction.¹⁰ The \$150,000 was underutilized, so the funds were reduced to \$50,000 for the following year.¹⁰

Though Oregon does not have the equivalent preventative vision care program of Kentucky, an estimated 70% of affected children are insured through private insurance, and children who are not insured may be able to obtain aid from organizations such as the Lion's Club; and special AOA programs offer exams at discounted rates.⁸

CHAPTER 9 – Conclusions and Recommendations

The Oregon Department of Education requires children to receive vision screenings before entering public schools, but vision screenings are an ineffective means of detecting children with vision and eye problems. Furthermore, children failing vision screenings are not required to receive adequate follow-up with an eye care professional.

Early detection of vision problems in children is an issue not receiving enough attention, and children's preventative vision care in Oregon is substandard and in need of a legislative upgrade. Oregon optometrists support comprehensive vision exams as the best form of preventative care. Comprehensive vision exams not only serve to diagnose vision problems, but also to treat individuals with vision and eye problems.

The Oregon Legislature will likely pass a law requiring all children entering public schools to have a comprehensive vision exam. The timing, however, remains uncertain. Concerned optometrists and organizations are working to make this vision a reality, and any support the public can provide is much needed. Until a mandate is passed, however, it is the responsibility of each adult to ensure his or her own optical health as well as that of their children. As much as it would be optimal for the Oregon Legislature to take a more pro-active approach in ensuring the visual well-being of children, until they do, the ultimate responsibility lies with the child's parents and guardians.

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APPENDICES

Appendix A – Survey

Please answer the following questions based on your personal as well as professional opinion.

1. On average, what percentage of your patients are between one and six years of age?
 - ☐ 0-10%
 - ☐ 10-20%
 - ☐ 20-30%
 - ☐ 30-40%
 - ☐ 40-50%
 - ☐ 50-60%
 - ☐ 60-70%
 - ☐ 70-80%
 - ☐ 80-90%
 - ☐ 90-100%
2. Do you believe that the percentage of children you see should be more, less, or is it about right?
 - ☐ More
 - ☐ Less
 - ☐ About right
3. Whose responsibility do you feel it is to ensure the ocular and visual health of children?
 - ☐ Parents/guardians
 - ☐ Family physicians
 - ☐ Optometrists
 - ☐ Schools
 - ☐ Government
 - ☐ Other
4. What do you feel might be the reason parents/guardians might not take their children in for comprehensive eye exams?
 - ☐ Lack of education
 - ☐ Lack of concern
 - ☐ Financial issues
 - ☐ Other

5. After failing a school vision screening, do children receive adequate follow-up?
- ☐ Yes
 - ☐ No
6. What percentage of children who feel/recognize they have vision problems will actively seek help by notifying their parent/guardian?
- ☐ 0-10%
 - ☐ 10-20%
 - ☐ 20-30%
 - ☐ 30-40%
 - ☐ 40-50%
 - ☐ 50-60%
 - ☐ 60-70%
 - ☐ 70-80%
 - ☐ 80-90%
 - ☐ 90-100%
7. In which way(s) are children most affected by visual handicaps? (Check all that apply)
- ☐ Limited education
 - ☐ Participation in sports
 - ☐ Involvement in the community
 - ☐ Other
8. On average, how many children you exam annually have vision loss that could have been prevented through early detection with a comprehensive vision exam?
- ☐ 0-10%
 - ☐ 10-20%
 - ☐ 20-30%
 - ☐ 30-40%
 - ☐ 40-50%
 - ☐ 50-60%
 - ☐ 60-70%
 - ☐ 70-80%
 - ☐ 80-90%
 - ☐ 90-100%

9. If the Oregon Legislature were to pass a bill regarding children's vision, which of the following models do you believe would be in the best interest of Oregon children?
- ☐ Mandatory comprehensive vision exams for all children entering the school system
 - ☐ Mandatory vision screenings for all children entering the school system, with mandatory follow-up for those who do not pass, enter special-education, or have below grade level reading abilities
 - ☐ No mandates – a bill is not necessary

Appendix B – Survey Results (Tabluar)

1. On average, what percentage of your patients are between one and six years of age?

| | Number of Responses | Percent of Oregon Optometrists |
|---------|---------------------|--------------------------------|
| 0-10% | 15 | 29% |
| 10-20% | 21 | 40% |
| 20-30% | 10 | 19% |
| 30-40% | 0 | 0% |
| 40-50% | 5 | 10% |
| 50-60% | 0 | 0% |
| 60-70% | 1 | 2% |
| 70-80% | 0 | 0% |
| 80-90% | 0 | 0% |
| 90-100% | 0 | 0% |
| Total | 52 | 100% |

2. Do you believe that the percentage of children you see should be more, less, or is about right?

| | Number of Responses | Percent of Oregon Optometrists |
|-------------|---------------------|--------------------------------|
| More | 23 | 44% |
| Less | 0 | 0% |
| About right | 29 | 56% |
| Total | 52 | 100% |

3. Whose responsibility do you feel it is to ensure the ocular and visual health of children?

| | Number of Responses | Percent of Oregon Optometrists |
|-------------------|---------------------|--------------------------------|
| Parents/guardians | 36 | 69% |
| Family physicians | 0 | 0% |
| Optometrists | 13 | 25% |
| Schools | 1 | 2% |
| Government | 1 | 2% |
| Other | 1 | 2% |
| Total | 52 | 100% |

4. What do you feel might be the reason parents/guardians might not take their children in for comprehensive eye exams?

| | Number of Responses | Percent of Oregon Optometrists |
|-------------------|---------------------|--------------------------------|
| Lack of education | 39 | 75% |
| Lack of concern | 5 | 10% |
| Financial issues | 6 | 12% |
| Other | 2 | 4% |
| Total | 52 | 100% |

5. After failing a school vision screening, do children receive adequate follow-up?

| | Number of Responses | Percent of Oregon Optometrists |
|-------|---------------------|--------------------------------|
| Yes | 23 | 46% |
| No | 27 | 54% |
| Total | 50 | 100% |

6. What percentage of children who feel/recognize they have vision problems will actively seek help by notifying their parent/guardian?

| | Number of Responses | Percent of Oregon Optometrists |
|---|---------------------|--------------------------------|
| Very unlikely (0-20% of the time) | 13 | 25% |
| Somewhat unlikely (21-50% of the time) | 26 | 50% |
| Likely (51-80% of the time) | 12 | 23% |
| Highly likely (81-100% of the time) | 1 | 2% |
| Total | 52 | 100% |

7. In which way(s) are children most affected by visual handicaps? (Check all that apply)

| | Number of Responses | Percent of Oregon Optometrists |
|-------------------------|---------------------|--------------------------------|
| Limited education | 51 | 98% |
| Participation in sports | 29 | 56% |
| Community involvement | 13 | 25% |
| Other | 7 | 13% |

8. On average, how many children you examine annually have vision loss that could have been prevented through early detection with a comprehensive vision exam?

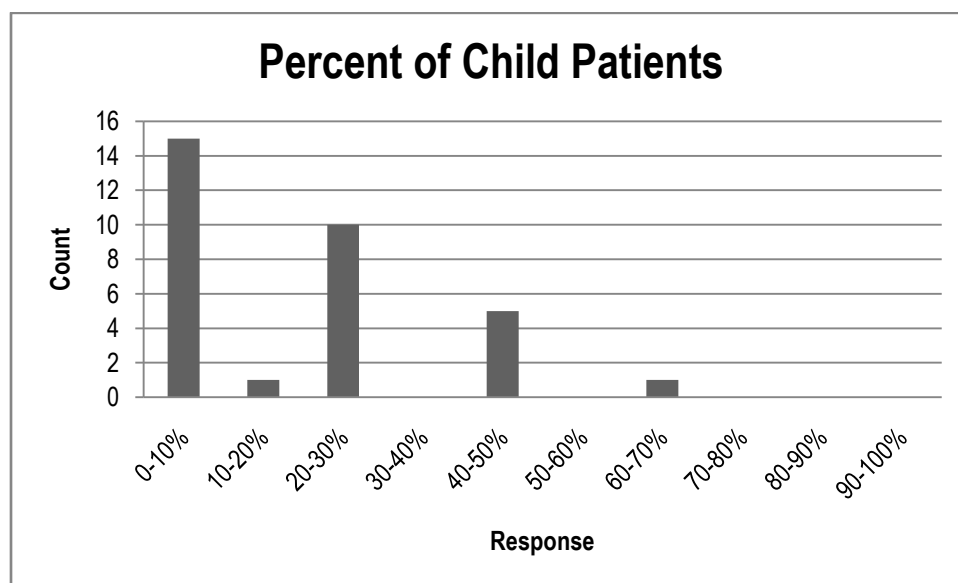
| | Number of Responses | Percent of Oregon Optometrists |
|---------|---------------------|--------------------------------|
| 0-10% | 27 | 52% |
| 10-20% | 18 | 35% |
| 20-30% | 3 | 6% |
| 30-40% | 0 | 0% |
| 40-50% | 2 | 4% |
| 50-60% | 0 | 0% |
| 60-70% | 1 | 2% |
| 70-80% | 0 | 0% |
| 80-90% | 0 | 0% |
| 90-100% | 1 | 2% |
| Total | 52 | 100% |

9. If the Oregon Legislature were to pass a bill regarding children's vision, which of the following models do you believe would be in the best interest of Oregon?

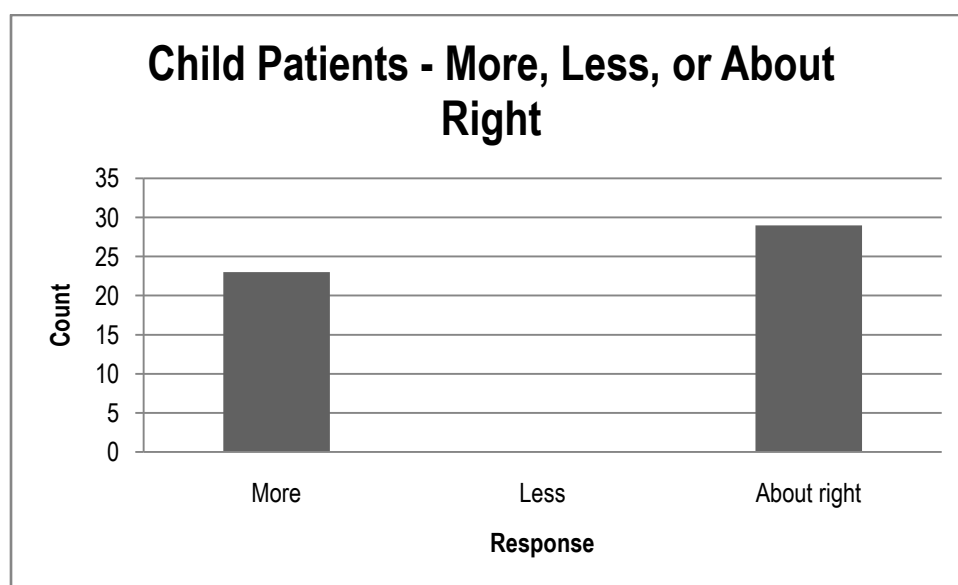
| | Number of Responses | Percent of Oregon Optometrists |
|--|---------------------|--------------------------------|
| Mandatory comprehensive vision exams for all children entering the school system | 31 | 61% |
| Mandatory vision screening for all children entering the school system, with mandatory follow-up for those who do not pass, enter special education, or have below grade-level reading abilities | 15 | 29% |
| No mandates – no bill is necessary | 5 | 10% |
| Total | 51 | 100% |

Appendix C – Survey Results (Graphical)

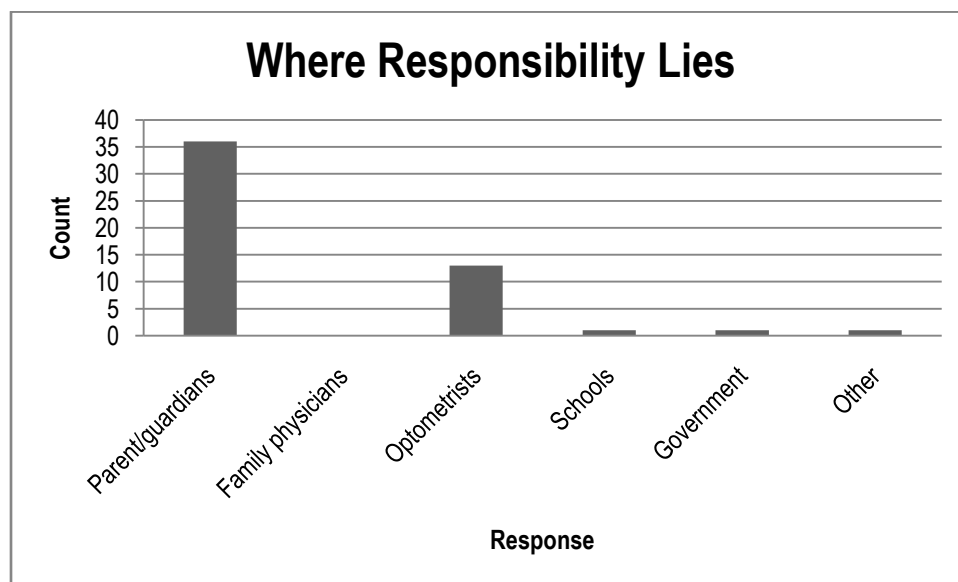
1. On average, what percentage of your patients are between one and six years of age?



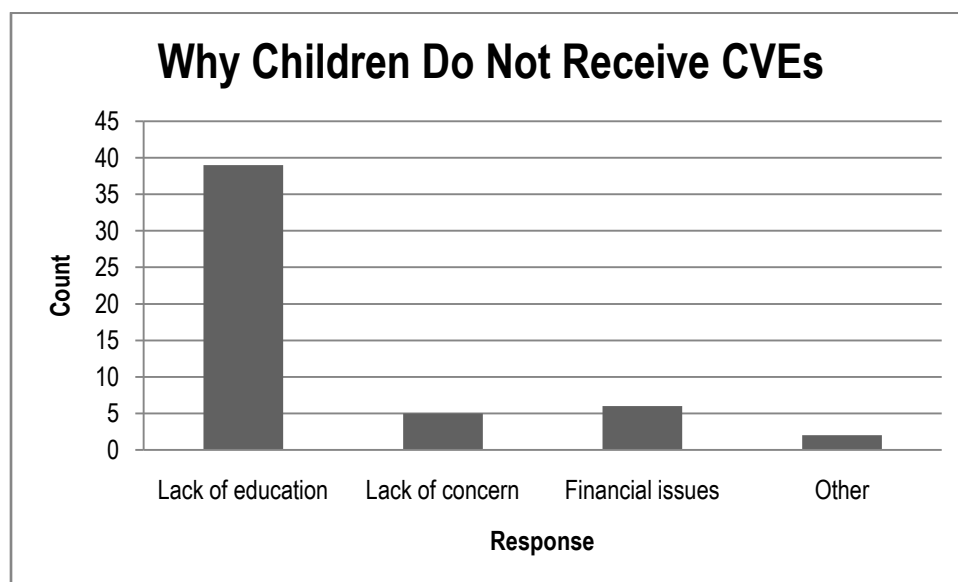
2. Do you believe that the percentage of children you see should be more, less, or is it about right?



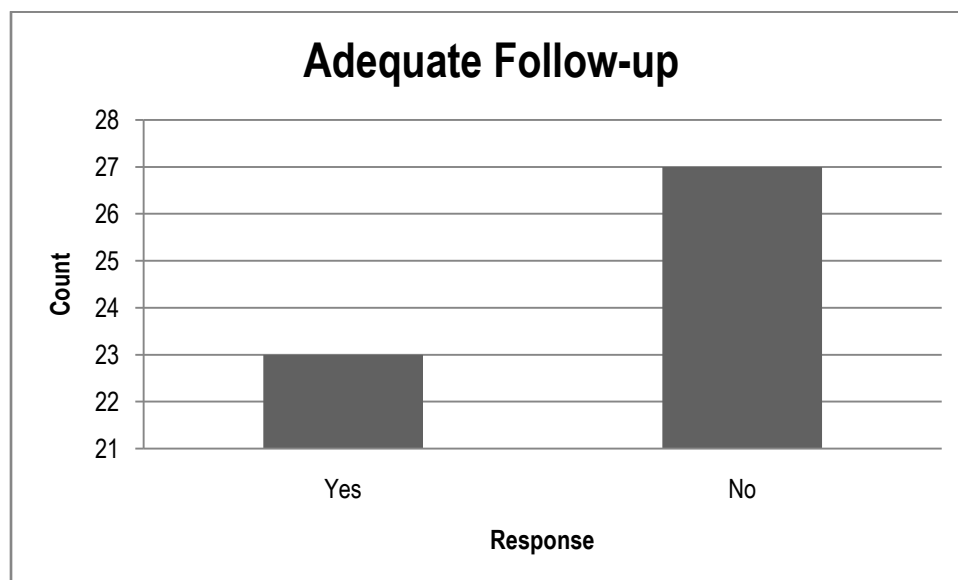
3. Whose responsibility do you feel it is to ensure the ocular and visual health of children?



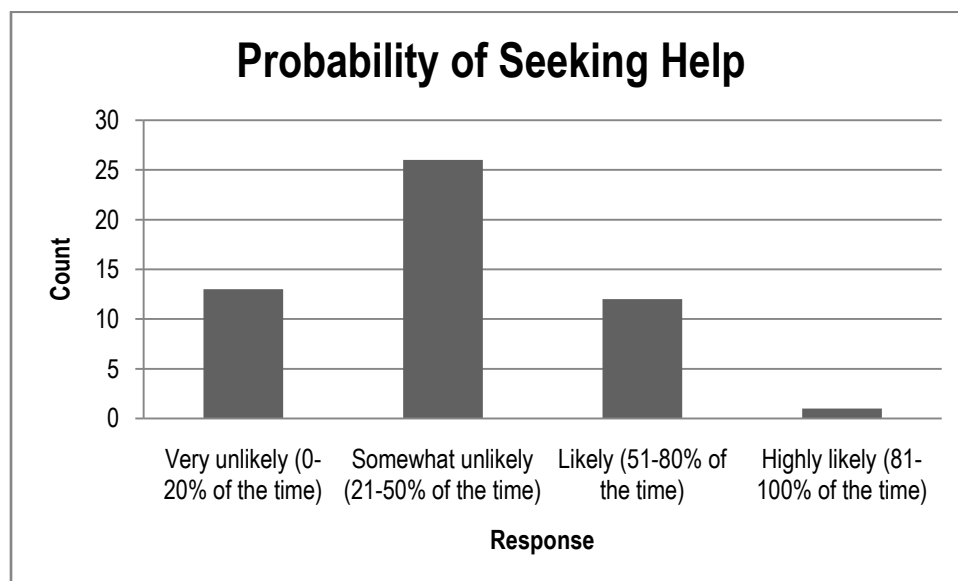
4. What do you feel might be the reason parents/guardians might not take their children in for comprehensive eye exams?



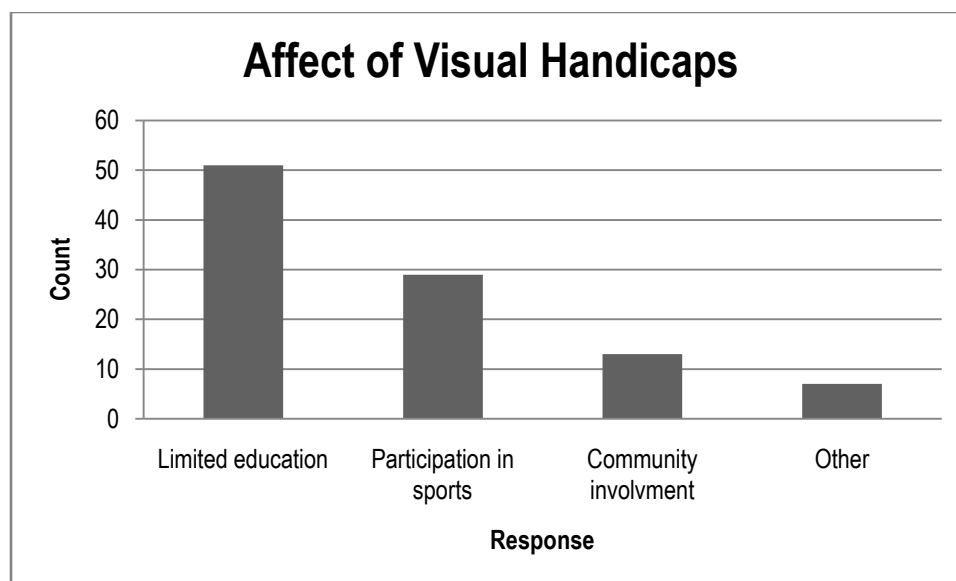
5. After failing a school vision screening, do children receive adequate follow-up?



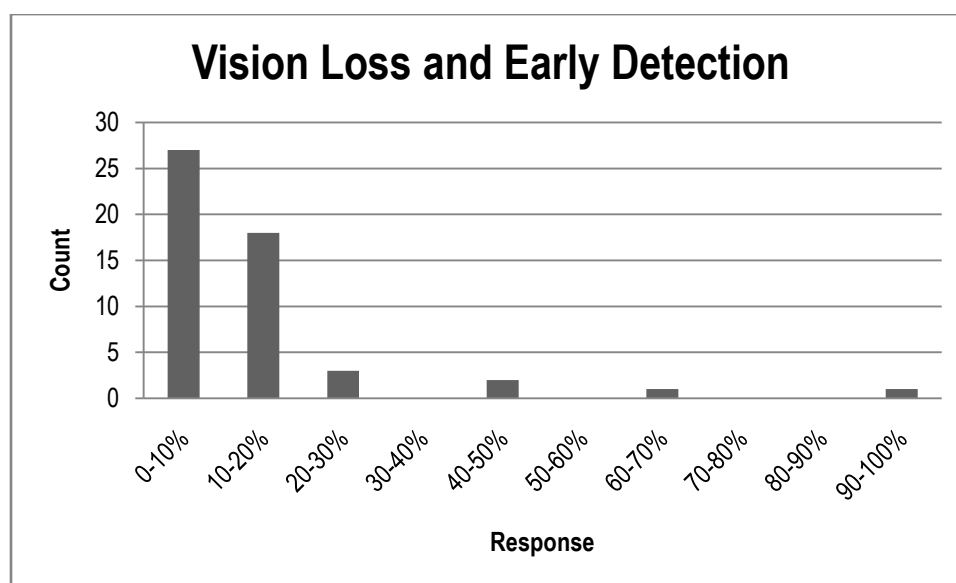
6. What percentage of children who feel/recognize they have vision problems will actively seek help by notifying their parent/guardian?



7. In which way(s) are children most affected by visual handicaps? (Check all that apply)



8. On average, how many children you examine annually have vision loss that could have been prevented through early detection with a comprehensive vision exam?



9. If the Oregon Legislature were to pass a bill regarding children's vision, which of the following models do you believe would be in the best interest of Oregon children?

