

**SENIOR PROJECT:**  
**ASSESSMENT OF THE 1993 ANNUAL HEALTH FAIR VISION SCREENING**

**BY**

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Vision screenings have increasingly been implemented as part of the preventative health care and delivery system in all communities. In the past several years, the Mecosta County General Hospital and representatives from many local health care organizations have joined together to conduct an annual Health Fair for the general public. The annual Health Fair provided the public with information on various health care needs and screenings, such as vision screening.

The purpose of the vision screening was to detect possible visual problems or ocular diseases in individuals and to recommend that person for further follow up care. Ferris State Optometry Clinic has participated in the annual Health Fair vision screening for the past several years. The screening not only provided a health service to the public, but it also offered a clinical experience to the optometry and optometric technician students involved in the screening. Additionally, the screening provided a means for attracting more patients to the college of optometry clinic. The goal of this research project was to evaluate the outcome and effectiveness of the 1993 annual Health Fair vision screening. Follow-up procedures were utilized to assess patient compliance after referrals were made.

## **Methods**

Located at the Ice Arena on the campus of FSU, the annual Health Fair was only a single day event. Held on a Friday of April 23, 1993, the annual Health Fair started from 8:00 a.m. and lasted till 8:00 p.m.

The Health Fair vision screening was organized into five different stations which the patient would sequentially follow through. The following are the general tests or procedures performed at each station:

Station I: case history; near visual acuity; and stereopsis on individuals less than 40 years of age.

Station II: distance visual acuity; cover test at distance and near; convergence nearpoint; and retinoscopy at 66 cm working distance with flipper +1.00/+3.00 on children less than 14 years of age.

Station III: pupils and internal health via direct and/or indirect ophthalmoscopy.

Station IV: intraocular pressure with the pulsair NCT (two readings were necessary if one was high).

Station V: doctor-patient consultation and discussion of the results of the vision screening. A signed copy of the vision screening form was given and informational pamphlets and brochures on ocular diseases and visual problems were provided.

Most of the screening tests were done with present spectacles or contact lenses being worn where applicable.

Patients who were recommended for a complete vision examination were based on the following criteria:

1. If the patient has not had a complete eye exam in the past two years
2. If distance or near V.A. was worse than 20/30

3. For any meridian on retinoscopy:
  - a. if see "with" through +3.00
  - b. if see "against" through +1.00
4. If any tropia; esophoria or exophoria > 5 p.d at distance;  
and/or esophoria > 6 p.d or exophoria > 10 p.d at near
5. If > 60 seconds of arc on stereopsis
6. If I.O.P > 21 mm Hg or 3 mm Hg difference between the two eyes
7. If any pathology or suspected findings with internal ocular  
health observation

A follow-up letter by Dr. James Miller was mailed in the middle of June 1993 to all patients who were referred for further care at the screening. Within the follow-up letter, we thanked the patient for their participation in the screening, explained the purpose of the screening and stressed the importance of getting a complete vision exam if they have not already done so. We further encouraged them to develop a consistent pattern for regular eye exams as part of their general preventative health care. We made available in the follow-up letter that if the patient did not have an eye care practitioner, they are more than welcomed to make an appointment at the Ferris State Optometry Clinic. We finally ended the letter with a statement that if the patient had any questions regarding their eye care needs, they could call Dr. Miller (see sample letter appendix I).

After the follow-up letter by Dr. Miller, a survey letter was mailed out near the end of July 1993 to all patients who were referred from the screening. The survey letter initially had an introduction of the student who was doing the research project,

followed by a statement explaining the purpose of the research project and subsequently asking the patient to help by filling out the following survey (see sample letter appendix II). The survey letter was enclosed with a return stamped address envelope to encourage more respondents.

## **Results**

A total of 202 people were screened within a single day. Although the majority of the people screened were from the Big Rapids area, other people from nearby counties and cities also participated in the screening as well. The followings are some of the counties and cities from which the people at the screening were representatives of: Alma, Barryton, Blanchard, Cadillac, Chippewa Lake, Edmore, Evart, Grand Rapids, Hersey, Le Roy, Mecosta, Millbrook, Morley, Paris, Reed City, Remus, Rockford, Rodney, Sears, Six Lakes, and Stanwood. There was also a person all the way from Flossmoor, Illinois.

Out of 202 people screened, 69 (34.2%) passed the screening and 133 (65.8%) were referred (see Table 1). Of those who were referred from the screening, the major and only reason for referral was that they have not had a complete eye exam in the past two years (51 people or 38.3%). 32 people out of 44 from the multiple referral reasons also did not have a complete eye exam in the past two years. So actually, 83 people (62.4%) were referred from the screening due to not having a complete eye exam in the past two years, with or without other referral reasons. Table 2 summarized the data regarding the prevalence and reasons for referrals.

In regards to the ocular alignment category, there were 2 people who were esotropes, 2 people who had equal or greater than 10 exophorias, and 4 people who had stereopsis equal or greater than 100 seconds of arc. In the ocular health category, asymmetrical I.O.P of greater than 3, I.O.P of greater than 20 mm Hg, macular drusen and a report of seeing double at night were the four cases that were recommended for further evaluation. In the multiple referral category, a combination of: not having an eye exam in the past two years, histories of floaters or diabetes, and young children needing a developmental evaluation to establish base line information were some of the reasons for referrals.

Out of 202 people screened, 109 (54.0%) were females and 93 (46.0%) were males. Out of 133 who were referred from the screening, 77 (57.9%) were females and 56 (42.1%) were males (see Table 3). In regards to gender, there was a direct relationship of those who participated and those who failed; more females participated and more females failed.

Out of 202 people screened, the range in ages was from age 2 through age 87; the average or mean age was 31 years. The majority of the participants were comprised of the 13-60 yr age range (44.1%). The next largest age population was the 0-12 yr age range (36.6%). Again, there was a direct relationship of those who participated more and those who were referred more; the 13-60 yr age range participated more and were referred more. Table 4 showed a summary of the number or percentages of people in each age range who participated and were referred from the vision screening.

After 133 follow-up letters by Dr. Miller were sent out, 133

survey letters were mailed out six weeks later. Out of 133 people surveyed, only 52 people responded. 20 out of 52 people told us they have vision care insurance. 22 out of 52 people said they have had a complete eye exam since they have received the follow-up letter; 11 out of those 22 people had their exam at the Ferris State Optometry Clinic. 19 out of 29 people said they will plan to have an eye exam in the near future; 14 out of those 19 people said their future eye exam might be at the FSU clinic. The Health Fair vision screening was the major reason which influenced the people's decision to get a complete eye exam. 23 people responded that they will plan on having an annual eye exam; 17 out of those 23 people already have had their complete eye exam for the 1993 year. In addition, 13 out of those 23 people planning to have an annual eye exam also have vision care insurance. See Table 5 for a tabulated result of the survey.

## **Discussion**

The 1993 annual Health Fair vision screening was indeed a success. Within one single day, 202 people participated in the screening. The annual screening program has provided a valuable public health education and community service to all who participated. The vision screening provided a large number of people with an optometric service they probably never or routinely have. This indeed was reflected on the 62.4% of people who were referred from the screening due to not having an eye exam in the past two years.

Follow-up procedures, such as the follow-up letter by Dr. Miller and the survey letter, gave a fairly good assessment of

patient's compliance. The assessment was based on the 52 people who responded out of 133 people surveyed. 22 out of those 52 people said they have had a comprehensive eye exam since they have received the follow-up letter; 11 out of those 22 people also said they have had their eyes examined at the FSU clinic. In addition, 19 more people said they would consider a complete eye exam in the near future. If this were the case, then compliance for getting a comprehensive eye exam after referrals and follow-up letters would be a total of 41 out of 52 people or 78.8%.

Although the number of compliance was significantly high, we can not ascertain that it was really true. One thing that could be confirmed was the 11 number of people who said they received their eye exam at FSU clinic. Using the computer and the names of the people who we have sent out follow-up letters and survey letters, we have actually found 17 people (6 people more) who really did received their eye exam at FSU. So a 50% or more compliance rate could be presumed or possible.

If the compliance rate was not high as expected, it could be attributed to the low percentage of people who have vision care insurance; 38.5% or 20 out of 52 people surveyed said they have vision care insurance. Not having vision care insurance was not just one problem (which consisted of 61.5% of the people surveyed), lots of low income people may have economical difficulties and can not afford to regularly have their eyes examined. A person made a comment on the survey in regards to health care bills saying:

"Years ago nobody went to the Dr. unless he was sick; yet you people want us to come for check-up all the time and

charge a big bill for a office visit. I can't see paying a big bill just to see that nothing is wrong with a person."

A comment like the one above raised a question of " what percentage of those who were referred for a complete eye exam would need a prescription or some sort of optometric management ?" . The 17 people who received their eye exam at FSU were used to address this answer. It was found that 47% or 8 out of 17 people would need a prescription as part of their eye care management. Although the correct-referral rate seemed a little bit low, it can not be used as a representative figure of the overall 1993 annual Health Fair vision screening. To validate this question, a questionnaire in regards to "what kind of eye care management (such as an Rx) did you received in your eye exam?" could be considered in our future survey.

## **Conclusion**

The 1993 annual Health Fair vision screening has been a worthwhile program. It provided the participants a valuable optometric service while promoting and educating the public on optometric health care. From the surveys we received, a lot of people made good comments on the services provided at the Health Fair vision screening. Some of the comments made are as follows:

"I go to Health Fair every year. I find it very helpful and needed. Thank you for your good screening."

"Your exam alerted us to the need. Thank you."

Also it was tabulated that 43 out of 52 people rated the annual Health Fair vision screening as good. Only 9 people rated it as

fair.

In regards to the strategies used to assess or even to improve better eyecare compliance, the follow-up letter by Dr. Miller and the survey letter proved to generate informative feedback. The one on one doctor-patient consultation at the end of the vision screening has indeed made a great impact on the patient's decision to get a complete eye examination; this was reflected in the number one answer in the survey. Yet the survey also showed that all or a combination of the patient's specific vision problems, the Health Fair vision screening, and Dr. Miller's follow-up letter contributed to their decision to get a complete eye exam. If anything, Dr. Miller's follow-up letter emphasized a concern and an encouragement to all patients who were referred from the vision screening to acquire a comprehensive eye exam and develop a regular pattern of eye care.

The annual Health Fair vision screening has indeed fulfilled its purpose of delivering basic eyecare service while promoting and educating patients and students about optometry and regular, comprehensive eye care. Optometric health care education through doctor-patient consultation, through brochures and pamphlets, and through follow-up letters have all been part of the promotion process. In return for the optometric services provided, the patients themselves have served to provide an educational experience for all the optometry and optometric technician students involved. The students had an opportunity to work with a wide variety of patients and efficiently improve their skills and knowledge as they performed many of the optometric tests. With a

program where both parties, the providers and the participants, benefit from each other, the annual Health Fair vision screening has been and will continue to be a successful program.

#### REFERENCES

1. Locke L. Analysis of a Community Vision Screening Program. J Am Optom Assoc. 1989; 60 : 88-93
2. Newcomb R, Marshall E. Public Health and Community Optometry, 2nd Ed. 1990; 347-349
3. Peterson-Klein N. Hand-outs of information and guidelines for annual Health Fair 1993.

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# Ferris State University

College of Optometry

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June 16, 1993

Kenyatta Sabir  
314 Merrill  
Big Rapids, MI 49307

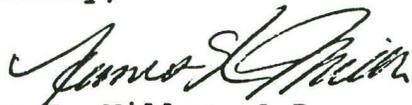
Dear Kenyatta:

I would like to thank you for attending the annual Health Fair Vision screening. Since your vision screening indicated the need for a complete eye examination, I am sending you this follow-up letter as a reminder of the importance of obtaining a complete eye exam in the near future.

A complete eye examination investigates all of the specific aspects of the visual system. My main hope is that you seek professional vision attention for your recommended referral and eventually develop a consistent pattern for regular comprehensive eye care. If you do not have a regular eye care practitioner, the optometry clinic at Ferris State is accepting new patients. To make an appointment at the clinic, please call 592-2222. The clinic is open Monday through Friday and the comprehensive exam costs \$30; however, the clinic does accept vision care health insurance plans if you have coverage.

Thanks again for participating in our vision screening and feel free to contact me directly at 592-2191 for any questions you may have regarding your eye care needs. Have a great summer!

Sincerely,



James R. Miller, O.D.

Appendix I. Sample of Follow-up Letter

July 27, 1993

Dear Bobbie:

My name is Kim Nguyen, and I am a fourth-year optometry student at Ferris State University. As part of my research project, I am evaluating the outcome and effectiveness of the 1993 annual Health Fair vision screening. As you may recall, a follow-up letter was sent to you indicating the need for a complete eye examination. I am now conducting a survey to determine your plans regarding your eyecare. My main hope is that you have obtained your complete eye examination and are developing a consistent pattern for regular comprehensive eyecare. Regular eye examinations help to monitor your eye health and evaluate your needs for clear and comfortable vision. Please take a minute to fill out the following survey. Your assistance is greatly appreciated and thanks again for participating in the vision screening.

Sincerely,



Kim Nguyen

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Please cut on dotted lines and return survey in enclosed envelope by August 17, 1993. Thank you!

- |  |  |                                     |
|--|--|-------------------------------------|
| 1. Do you have vision care insurance?  | Yes  | <input checked="" type="radio"/> No |
| 2. Have you had a complete eye examination since you received the follow-up letter?                                      | <input checked="" type="radio"/> Yes       | No                                  |
| a. If "yes", was your exam at our clinic?  | <input checked="" type="radio"/> Yes       | No                                  |
| b. If "no" in #2, do you plan on having an eye exam in the near future?  | Yes  | No                                  |
| c. If "yes" in (b), will it be at FSU College of Optometry?  | Yes  | No                                  |
| 3. Which of the following choices below influenced your decision to get a complete eye examination?                      |  |                                     |
| a. A specific vision problem you were having   |  |                                     |
| b. The Health Fair vision screening  |  |                                     |
| c. Dr. Miller's follow-up letter   |  |                                     |
| d. All of the above  |  |                                     |
| e. None of the above/other <i>A letter from his school to saying he was qualified for eye exam because of low income</i> |  |                                     |
| 4. If you already had your complete eye examination, do you plan on having it on an annual basis from now on?            | <input checked="" type="radio"/> Yes       | No                                  |
| 5. How do you evaluate the services provided at the Health Fair vision screening?  | good <input checked="" type="radio"/> fair | poor                                |

Appendix II. Sample of Survey Letter

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 Table 1: Summary of screening participants  
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|                           |             |
|---------------------------|-------------|
| Total number screened     | 202         |
| Number passed V.S.        | 69 (34.2%)  |
| Number referred from V.S. | 133 (65.8%) |

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 Table 2: Reasons for Referral and number in each category  
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|   |            |
|---|------------|
| 1. V.A.   | 25 (18.8%) |
| 2. Refractive Status  | 1 (0.8%)   |
| 3. Ocular Alignment   | 8 (6.0%)   |
| 4. Ocular Health  | 4 (3.0%)   |
| 5. Last Eye Exam > 2 yr   | 51 (38.3%) |
| 6. Multiple Referral Reason<br>(include any combination of #1-#5) | 44 (33.1%) |

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 Table 3: Percentage of Gender who participated in screening  
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|                               | <u>Male</u>       | <u>Female</u>      |
|-------------------------------|-------------------|--------------------|
| % of Gender who participated  | 93/202<br>(46.0%) | 109/202<br>(54.0%) |
| % of Gender who were referred | 56/133<br>(42.1%) | 77/133<br>(57.9%)  |

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 Table 4: Range of ages who participated in screening  
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|  |                   |                   |                   |
|--|-------------------|-------------------|-------------------|
| Age range  | 2-87 yr           |                   |                   |
| Mean age   | 31 yr             |                   |                   |
|  | <u>0-12 yr</u>    | <u>13-60 yr</u>   | <u>61+ yr</u>     |
| % of Age groups<br>who had participated in V.S.      | 74/202<br>(36.6%) | 89/202<br>(44.1%) | 39/202<br>(19.3%) |
| % of Age groups<br>who were recommended for referral | 42/133<br>(31.6%) | 66/133<br>(49.6%) | 25/133<br>(18.8%) |

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**Table 5: Summary of Survey**

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|     |  |    |
|-----|--|----|
| 1.  | People who have vision care insurance  | 20 |
| 2.  | People who have had a complete eye exam since received follow-up letter            | 22 |
| 2a. | People who had their eye exam at FSU clinic  | 11 |
| 2b. | People who plan to have an eye exam in near future                                 | 19 |
| 2c. | People who plan to have an eye exam in near future at FSU clinic                   | 14 |
| 3.  | The following choices which influenced people's decision to get complete eye exam: |    |
|     | a. A specific vision prob.   | 5  |
|     | b. Health Fair vision screening  | 10 |
|     | c. Dr. Miller's follow-up letter   | 4  |
|     | d. All of the above  | 9  |
|     | e. None of the above/other   | 6  |
|     | f. Combination of a & b  | 4  |
|     | g. Combination of b & c  | 5  |
|     | h. No response   | 9  |
| 4.  | People who plan on having annual eye exam  | 23 |
| 5.  | Evaluation of services provided at Health Fair vision screening                    |    |
|     | a) Good  | 43 |
|     | b) Fair  | 9  |
|     | c) Poor  | 0  |