

**HYPERTENSION SCREENINGS: A SURVEY OF THE MICHIGAN COLLEGE OF
OPTOMETRY**

by

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OPTOMETRY

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Ferris State University
Doctor of Optometry Senior Paper
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OPTOMETRY

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ABSTRACT

Background: As primary healthcare providers, optometrists are an entry point into the healthcare system for many patients. Optometrists are responsible for assessing patients' ocular and overall systemic health, both of which can be negatively affected by conditions such as hypertension. The purpose of this study is to evaluate the beliefs of the primary care faculty of the Michigan College of Optometry about the importance of screening patients for hypertension, as well as to develop a general idea of the prevalence of blood pressure screening within the Michigan College of Optometry's University Eye Center. *Methods:* There were 1492 primary care comprehensive eye exams from May 1, 2007 through April 30, 2008 at the University Eye Center. This study used a random number generator to identify 518 patient records to be reviewed. Data collected included whether or not the patient had his or her blood pressure measured and if so, what may have led to the decision to take a measurement. Surveys questioning the importance of administering blood pressure measurements were given to the 21 primary care faculty of the Michigan College of Optometry with a 76.1% response rate. *Results:* Of the 518 records reviewed, only 42 (8.1%) records had a blood pressure measurement recorded. Sixty-two percent of the surveyed doctors felt that evaluating a patient's overall systemic health was "extremely important." However, only 6% of doctors always require their interns to perform blood pressure measurements, while 44% of doctors rarely or never require interns to administer the measurements. *Conclusions:* Though many of the

doctors feel it is important to monitor a patient's overall systemic health, many do not perform hypertension screenings on their patients. Possible ideas for improvements are updating the available equipment or having patients' blood pressure measured before they are placed in the exam room.

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INTRODUCTION

Hypertension is a major health concern worldwide due to its high prevalence and association with increased risk of cardiovascular disease.¹ With recent advances in the diagnosis and treatment of hypertension, dramatic declines have been seen in the rates of coronary heart disease and stroke mortality in developed countries.¹ In the past few years however, control rates have declined, leading to estimates of 1.2 billion people with hypertension worldwide by the year 2010.¹

Systemic hypertension is a major risk factor for coronary heart disease and stroke, the first and third leading causes of death in North America, respectively.² Based on recommendations of the Seventh Report of the Joint National Committee of Prevention, Detection, Evaluation, and Treatment of High Blood Pressure (JNC VII), hypertension is classified as pre-hypertension, stage 1 hypertension, or stage 2 hypertension. Normal blood pressure with respect to cardiovascular risk is defined as less than 120 mmHg over 80 mmHg.² Pre-hypertension is defined as a systolic pressure of 120 to 139 mmHg and a diastolic pressure of 80 to 89 mmHg.² Pre-hypertension indicates that the individual is at risk for progression to hypertension and that lifestyle modifications are important to help prevent progression of the disease.² Stage 1 hypertension consists of a systolic pressure of 140 to 159 mmHg and a diastolic pressure of 90 to 99 mmHg.² Stage 2 hypertension is defined as a systolic pressure of 160 mmHg or greater and a diastolic pressure of 100 or greater.² Hypertension is also a significant modifiable risk factor for congestive heart failure, end-stage renal failure, and peripheral vascular disease.² Due to its correlation

with multiple disease processes, hypertension is a condition of concern for many types of healthcare providers.

Identification of hypertensive patients has become more important as hypertension becomes a growing public health concern. Accordingly, blood pressure screenings are increasingly important in today's society. As the population ages and becomes more obese on average, a greater number of individuals become hypertensive. Approximately 65 million people in the United States currently have hypertension, meaning that one out of every four people is afflicted with this condition.³ The National Institutes of Health (NIH) reports that there has been a 30% increase in the number of Americans with hypertension over the past decade.³ While many people are aware that they have hypertension and receive medical attention, there are a large number who are unaware they have the condition.

Primary hypertension, also called the "silent killer" is asymptomatic until organs become damaged and complications arise.³ Early detection is key in prevention of major complications related to organ damage. On the most basic level, long-standing hypertension leads to changes in blood vessels throughout the body. Manifestations of hypertension can be seen in the eye before anywhere else in the body, as the eye is the only organ in which blood vessels can be observed directly without using an invasive procedure.⁴ Damage to retinal vessels can include leaking or blockage of the vessels and can lead to bleeding in the eye, microaneurysms, swelling of the optic nerve, blurred vision, and complete loss of vision.⁵

For many individuals, optometrists are often an entry point into the healthcare system. Further, optometrists are sometimes the only primary care providers that a patient sees regularly.³ Through blood pressure screenings, optometrists can help increase the number of people who are aware of their disease and can aid them in seeking treatment. Optometrists can also provide another reminder to those who have previously been diagnosed with hypertension that visits to a primary care physician are vital to their systemic health.

METHODS

The purpose of this study is to evaluate the beliefs of the primary care faculty of the Michigan College of Optometry about the importance of screening patients for hypertension, as well as develop a general idea of the prevalence of blood pressure screening within the Michigan College of Optometry's University Eye Center. There were 1492 primary care comprehensive eye exams performed from May 1, 2007 through April 30, 2008 in the University Eye Center. This study used a random number generator to identify 518 patient records to be reviewed. Data collected included whether or not the patient had his or her blood pressure measured and if so, what may have led to the decision to take a measurement. The records reviewed represented a random sampling of the primary care faculty as well as educational level of the student intern administering the exam.

A survey was developed and administered to the 21 primary care faculty of the Michigan College of Optometry. The survey focused mainly on the faculty's beliefs about the importance of administering blood pressure measurements on the primary care patient population. Questions also addressed issues such as why blood pressure

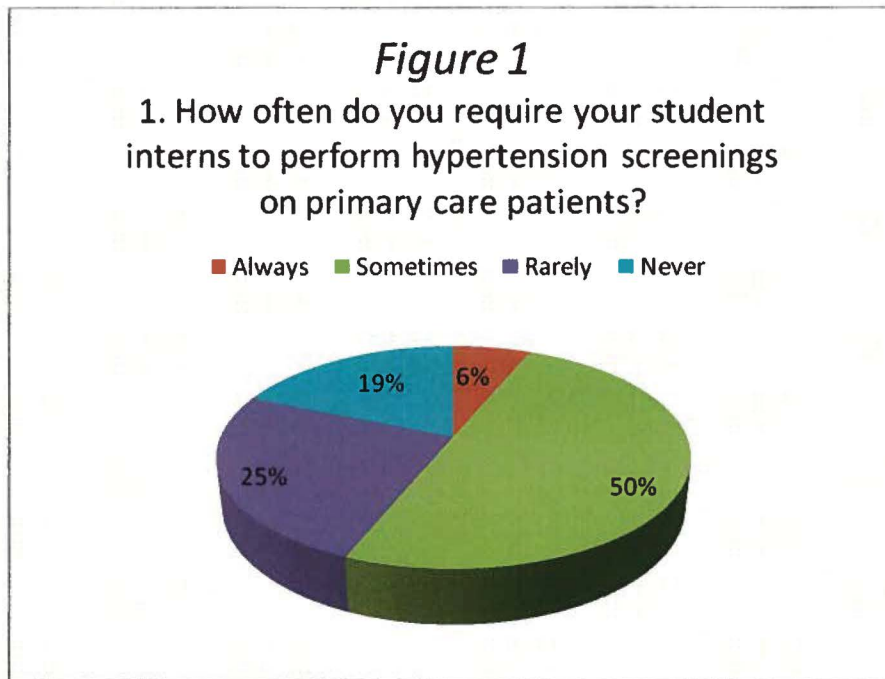
measurements may not be included in exams, whether or not the student interns can conduct the measurements and record the results properly, the quality of equipment available in the clinic, and the respondent's overall impression of whether or not the University Eye Center does an adequate job of screening patients for hypertension.

RESULTS

After reviewing the 518 randomly selected primary care exam records, results revealed that 42 or 8.1% of records had a blood pressure measurement recorded. There were definite trends in the data that became apparent as the charts were reviewed. Certain doctors had a significantly higher number of measurements recorded compared to others. For those records in which a measurement was recorded, the record was reviewed to try to find a possible reason for the administration of the procedure. Common findings were a personal history of high blood pressure and/or heart disease. However, many records with no blood pressure measurement recorded included similar patient histories.

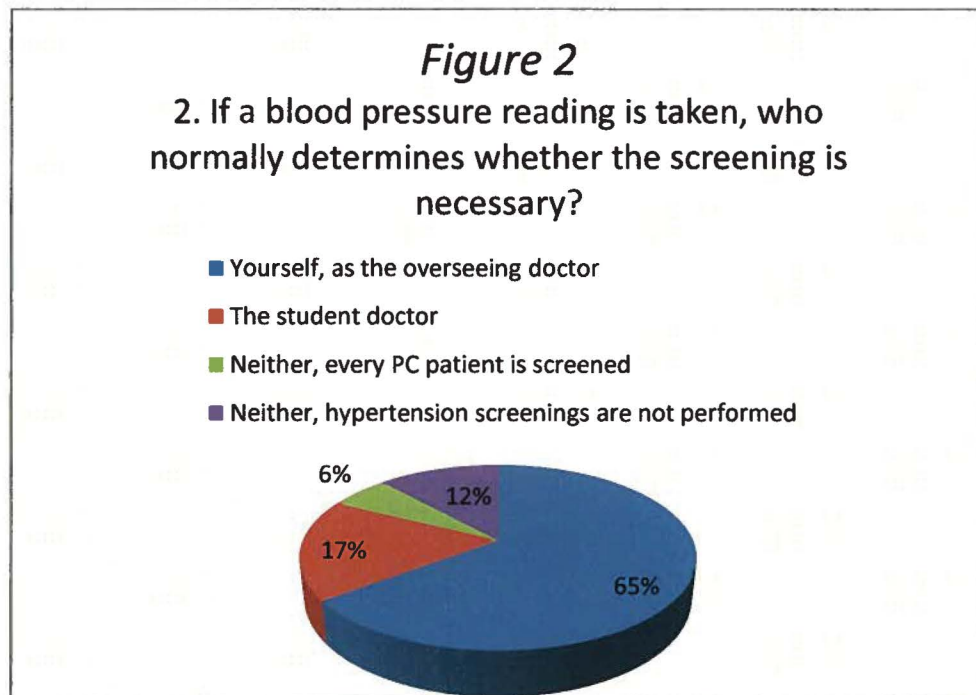
Surveys questioning the importance of administering blood pressure measurements were administered to the 21 primary care faculty of the Michigan College of Optometry with a 76.1% response rate. The first questions asked the faculty, "How often do you require your student interns to perform hypertension screenings on primary care patients?" The most common answer was sometimes (50%), followed by rarely (25%), never (19%), and always (6%). Results are shown in the Figure 1 below.

Figure 1: Blood Pressure Measurement Requirements



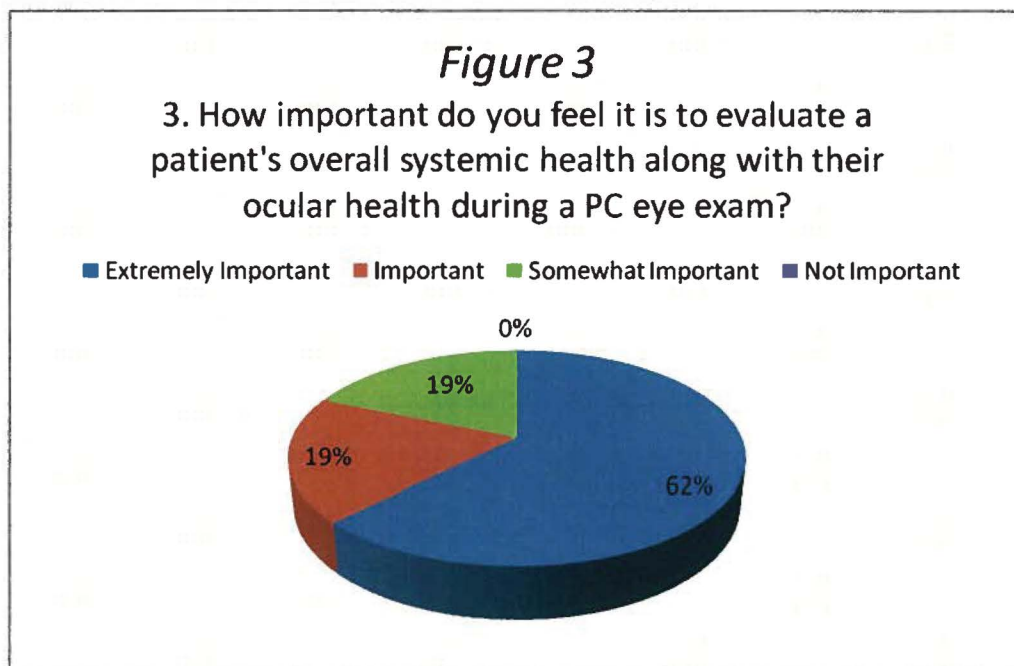
Question number two asked the practitioners, “If a blood pressure reading is taken, who normally determines whether the screening is necessary?” Sixty-five percent of the doctors responded that they made the decision to check a patient’s blood pressure, 17% responded that the student interns made the decision, 12% responded that hypertension screenings are not performed, and 6% responded that hypertension screenings are performed on every primary care patient.

Figure 2: Determination of Screening



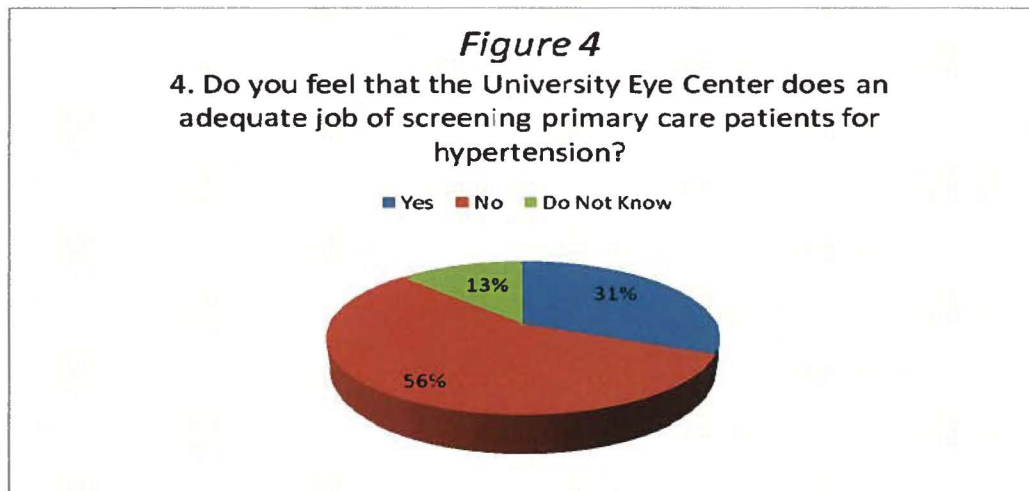
Question number three asked the practitioners, “How important do you feel it is to evaluate a patient's overall systemic health along with their ocular health during a primary care eye exam?” The most common response was extremely important (65%), followed by important (19%) and somewhat important (19%). No doctors felt that a patient’s overall systemic health was unimportant. Results can be reviewed in Figure 3.

Figure 3: Importance of Systemic Health



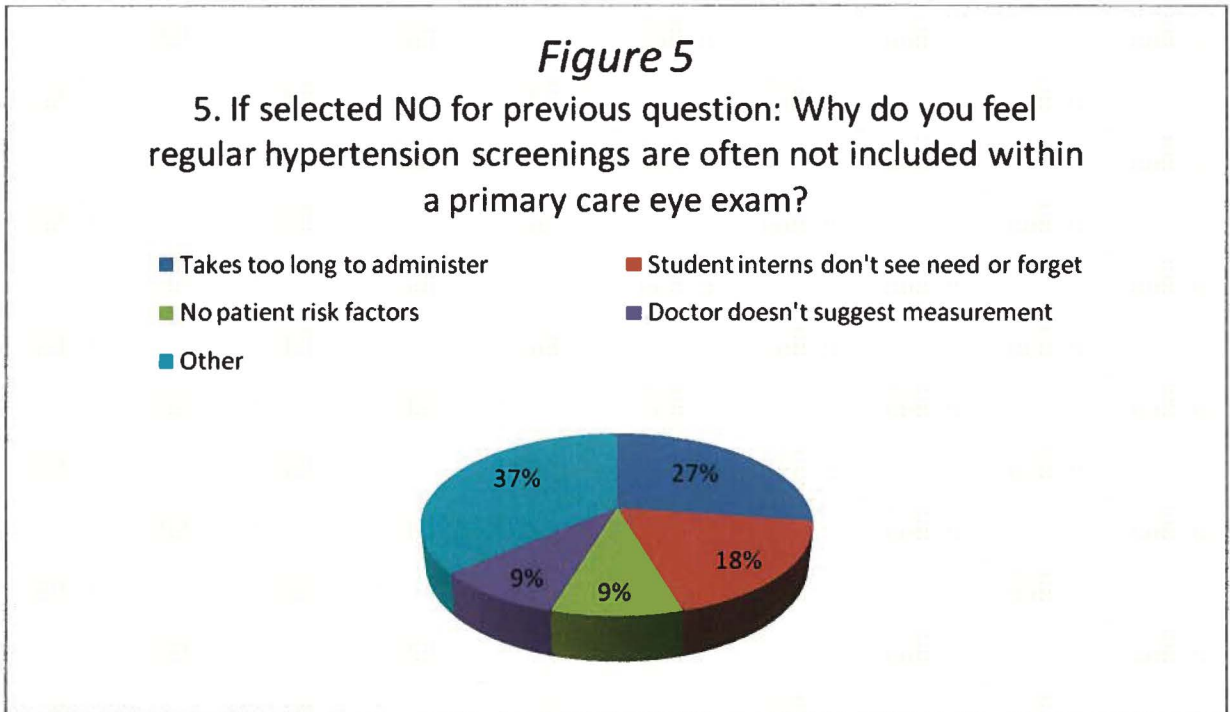
Question four asked the faculty, “Do you feel that the University Eye Center does an adequate job of screening primary care patients for hypertension?” The majority (56%) of surveyed doctors felt that the University Eye Center does not do an adequate job of screening patients. Thirty-one percent felt that it does and 13% were not sure. Figure 4 shows the results of question four.

Figure 4: Performance of University Eye Center



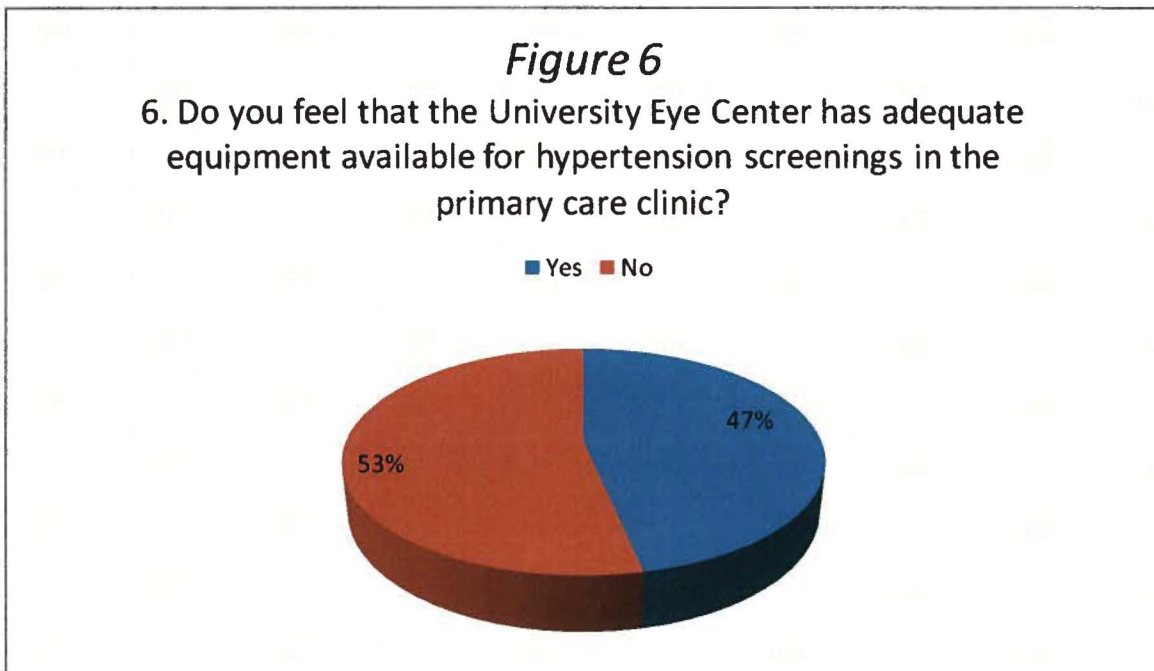
As a follow up to question four, question five asked the practitioners, “If selected NO for previous question: Why do you feel regular hypertension screenings are often not included within a primary care eye exam?” The most common answer was other (37%), followed by it takes too long to administer (27%), student interns don’t see the need or forget (18%), no patient risk factors (9%), and the doctor doesn’t suggest measurement (9%). Two common responses of the doctors who selected “other” were faulty equipment and unskilled interns. Results are shown in Figure 5.

Figure 5: Reasons screenings are not performed



Question six presented the question, “Do you feel that the University Eye Center has adequate equipment available for hypertension screenings in the primary care clinic?” Fifty-three percent of the doctors responded “No” and 47% responded “Yes.” Figure 6 shows the results.

Figure 6: Equipment adequacy

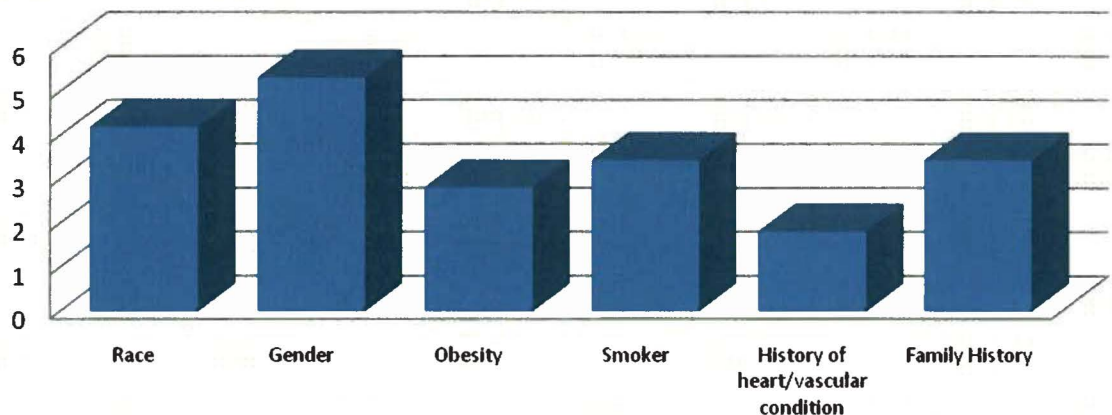


In the seventh question, the primary care doctors were asked to rank the following hypertension risk factors in order from most important (1) to least important (6): race, gender, obesity, smoker, history of heart/vascular condition, and family history. Figure 7 shows the average rank between 1 and 6 that each response received. The participants responded that a history of heart/vascular disease is the largest risk factor for hypertension.

Figure 7: Importance of risk factors

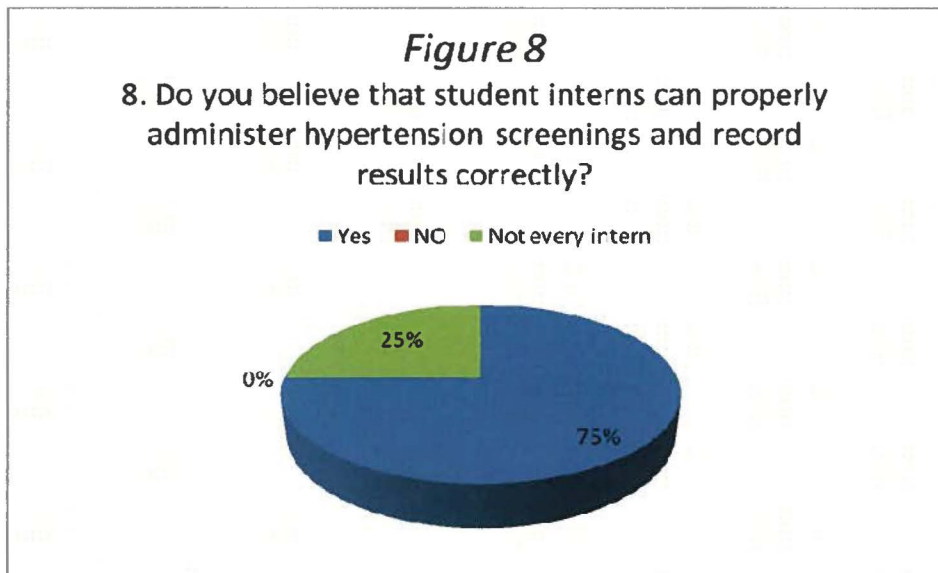
Figure 7

7. Rank in order, from most important (1) to least important (6), the following hypertensive risk factors.



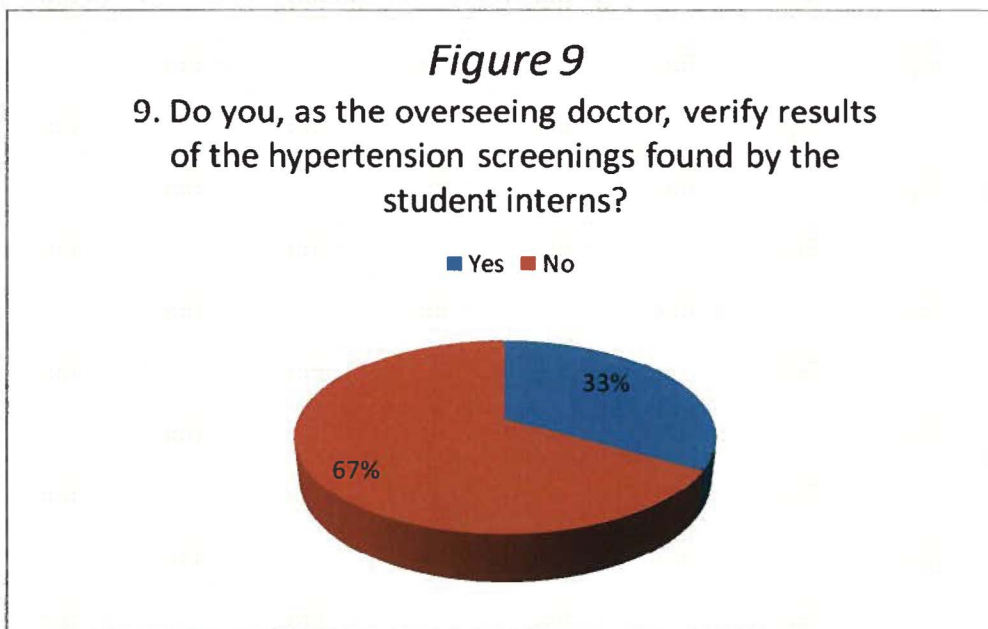
Question eight asked, “Do you believe that student interns can properly administer hypertension screenings and record results correctly?” Seventy-five percent of the doctors responded “Yes,” while 25% felt that not every intern can properly administer hypertension screenings. Results are shown in Figure 8.

Figure 8: Intern competence



The primary care practitioners were next asked, “Do you, as the overseeing doctor, verify results of the hypertension screenings found by the student interns?” Sixty-seven percent responded “No” and 33% responded “Yes.” Results are shown in Figure 9.

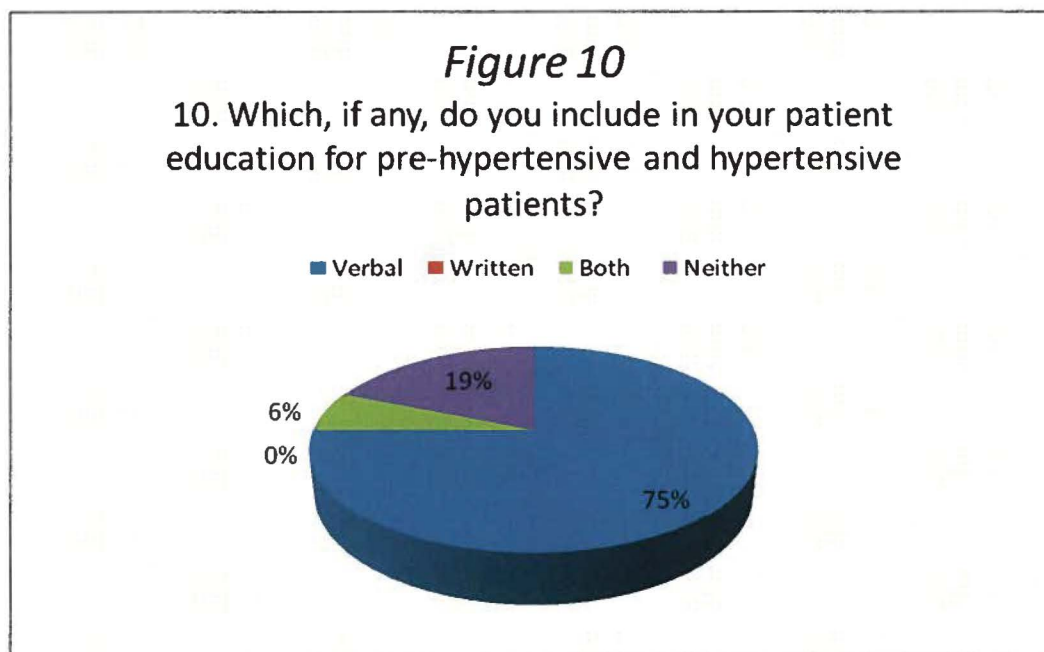
Figure 9: Result verification



The tenth question asked, “Which, if any, do you include in your patient education for pre-hypertensive and hypertensive patients?” The majority (75%) of

respondents said that they provide verbal education to patients. Surprisingly, 19% of the doctors answered that they provide neither written nor verbal education. The other responses can be viewed in Figure 10.

Figure 10: Patient education



The final question asked the doctors, “Do you feel comfortable explaining to your patients the blood pressure screenings results along with the associated referral, follow up, and recall if necessary?” Every doctor responded “Yes” to this question.

DISCUSSION

Comparing the number of exams in which a blood pressure measurement was recorded versus the responses to many of the survey questions shows that although many of the primary care faculty feel that it is important to evaluate a patient’s overall systemic health, patients are not screened for hypertension the majority of the time. This is not surprising, considering 56% of the faculty believes that the University Eye Center does

not do an adequate job of screening patients for hypertension. Only 6% of doctors surveyed require their interns to perform blood pressure measurements on their primary care patients. Forty-four percent of doctors responded that they rarely or never require interns to screen patients.

When asked why blood pressure measurements are not often performed, a common answer was that the testing takes too long to administer. Many doctors (53%) felt that the clinic does not have adequate equipment to even perform the measurements. Though most exam rooms are fitted with sphygmomanometers, many doctors felt that the cuffs do not inflate properly. It was also noted that most exam rooms do not have stethoscopes available and many interns have not purchased their own.

The interns at the Michigan College of Optometry are fully trained to administer blood pressure measurements and interpret the results. The interns must pass several tests showing competency in this area before they are allowed to examine patients. Seventy-five percent of the surveyed doctors felt that most interns were capable of administering blood pressure measurements and recording results correctly. This belief is evident considering 67% of the doctors do not verify the results that the interns obtain. Twenty-five percent of doctors felt that not every intern is capable of performing blood pressure measurements correctly.

Sixty-five percent of those surveyed responded that they themselves determined whether or not to administer a blood pressure measurement versus 17% who responded that the interns make the decision. With many of the doctors believing that a patient's overall systemic health is important, they are not necessarily practicing what they preach

by not instructing their interns to administer blood pressure measurement more often. This may also lead the interns to believe that monitoring a patient's blood pressure is not necessarily that important.

The end of the survey had a section in which the practitioners could list any comments they may have had. Many doctors used this opportunity to list some ways to increase the frequency of blood pressure screenings performed in the clinic. One idea was to purchase automated blood pressure cuffs for the clinic. This would be a way to shorten the time required to take a measurement compared to the traditional method using a stethoscope. Automated cuffs would also eliminate variations in results by eliminating intern errors. Another mentioned idea was to have the patients' blood pressure measured by a staff member before they are placed in the exam room.

CONCLUSION

Approximately 65 million people in the United States have hypertension and as the population ages and becomes more obese, this number is expected to rise. While many people are aware they have hypertension and are obtaining treatment, there is a large number of individuals who are unaware they have the condition. For many individuals, optometrists are an entry point into the healthcare system. By screening patients for hypertension, optometrists can detect the condition early and refer patients for proper treatment before more serious medical conditions, such as heart disease and stroke, arise.

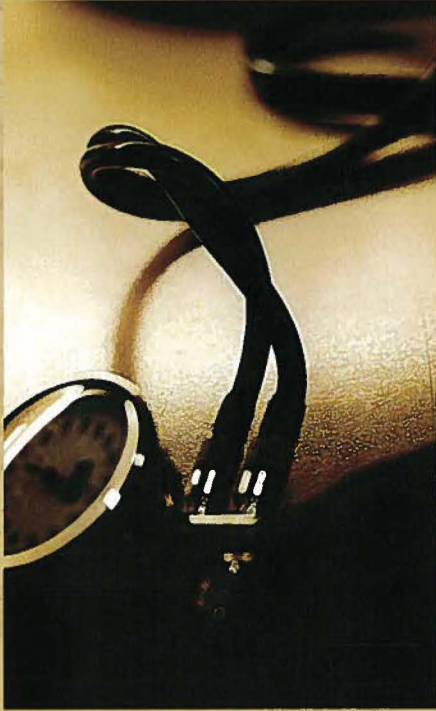
Though 84% of the doctors surveyed feel it is important to monitor a patient's overall systemic health, blood pressure measurements are only performed on approximately 8.1% of primary care patients. Time constraints were listed as a common reason for this. Inadequate equipment was also noted to be a reason so few patients are screened for hypertension. Possible ideas for improving the number of patients screened are updating the available equipment or having the patients' blood pressure measured before they are placed in the exam room. With the Michigan College of Optometry receiving approval for a new clinic, a possible follow up study could examine whether more patients are screened for hypertension once newer equipment is available.

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APPENDIX A

SURVEY INTRODUCTION



Survey Results will be available by 5/15/09 by contacting:

Brian Schmidt

schmidb2@ferris.edu

Or

Kelly Abbott

abbottk@ferris.edu

MCO Faculty Hypertension Screening Survey

You are being asked to participate in a study examining the prevalence of hypertension screenings during primary care exams at the University Eye Center. Results will be used to better understand the frequency of hypertension screenings as well as the overall position of the primary care faculty towards the importance of the screenings.

*The Survey will take approximately
5 minutes to complete.*

No personal identification information will be collected or included within the study.

*Please complete and place the survey into
the included envelope.*

*Return to mailbox #29 by **October 3, 2008.***

*Please accept in advance our
appreciation for your participation.*

APPENDIX B

SURVEY INSTRUMENT

1. How often do you require your student interns to perform hypertension screenings on primary care patients?

- Always
- Sometimes
- Rarely
- Never

2. If a blood pressure reading is taken, who normally determines whether the screening is necessary?

- Yourself, as the overseeing doctor
- The student intern
- Neither, every primary care patient is screened
- Neither, hypertension screenings are not performed

3. How important do you feel it is to evaluate a patient's overall systemic health along with their ocular health during a primary care eye exam?

- Extremely important
- Important
- Somewhat important
- Not important

4. Do you feel that the University Eye Center does an adequate job of screening primary care patients for hypertension?

- Yes
- No

5. If selected **No** for previous question: Why do you feel regular hypertension screenings are often not included within a primary care eye exam?

- Takes too long to administer
- Student interns don't see the need for screening or simply forget
- No patient risk factors
- Doctor doesn't suggest blood pressure measurement
- Other:

6. Do you feel that the University Eye Center has adequate equipment available for hypertension screenings in the primary care clinic?

- Yes
- No
- If selected **No**, please indicate why:

7. Rank in order, from most important (1) to least important (6), the following hypertension risk factors you consider when evaluating a patient.

___ Race

___ Gender

___ Obesity

___ Smoker

___ History of heart / vasculature condition

___ Family history of hypertension

8. Do you believe that student interns can properly administer hypertension screenings and record results correctly?

Yes

No

Not every intern

9. Do you, as the overseeing doctor, verify results of the hypertension screening found from the student interns?

Yes

No

10. Which, if any, do you include in your patient education for pre-hypertensive and hypertensive patients?

Verbal (i.e. discussion)

Written (i.e. pamphlet)

Both

Neither

11. Do you feel comfortable explaining to your patient the blood pressure screening results along with the associated referral, follow up, and recall if necessary?

Yes

No

Additional comments:
