AN EYE TO THE FUTURE

The Department of Ophthalmology
The University of Arizona
Health Sciences Center

Winter 2002

Brian McKay, PhD, Joins UA Quest to Cure Blinding Eye Diseases

▲ *Brian McKay, PhD*

Brian McKay, PhD, a researcher in age-related macular degeneration, has joined the faculty of the UA Department of Ophthalmology as an assistant professor.

He joins Robert I. Park, MD, UA assistant professor of ophthalmology (see article in the next issue of *Eye on the Future*) as a member of the UA Department of Ophthalmology's Southwest Age-Related Macular Degeneration (ARMD) Research Program. The goal of the Southwest ARMD Research Program is to develop a technique to replace a patient's diseased macular retinal pigment epithelium (RPE) cells with healthy RPE cells harvested from a different region of the retina. This technique may be applied to late dry or wet ARMD.

Prior to joining the UA ophthalmology department, Dr. McKay was assistant professor in the Departments of Ophthalmology and Cell Biology at Duke University Medical Center in Durham, N.C., where he developed his research program in retinal cell biology. At the UA, he will continue his research to understand the factors affecting the development of cells in the eye, why they behave abnormally in macular degeneration and in other eye diseases, and how to target and correct these cells to make them perform normally. His research interests include discovering how cells are held together as a tissue and how breakdowns in this mechanism occur in ARMD and other eye diseases. His studies use protein engineering to create new proteins useful in probing retinal cell function.

Dr. McKay also is investigating treating macular degeneration by transplanting healthy cells into the central part of the retina. A recent breakthrough from his laboratory has illustrated that cells from adults may be useful for transplantation therapies after the cells are cultured in the laboratory for months.

"Dr. McKay has an inquisitive and creative mind. As an assistant professor at Duke University, he developed the methodology to grow human retinal pigment epithelium cells in culture and maintain their normal behavioral and biochemical state. This has significant potential to remove the diseased cells in macular degeneration," says Robert W. Snyder, MD, PhD, professor and head of ophthalmology. "There are different forms of macular degeneration and we hope this will be successful in treating some of these."

Dr. McKay's research also may hold promise for Parkinson's disease. RPE cells produce L-dopa, a chemical used by the brain to make dopamine, a neurotransmitter essential to normal nerve function. Parkinson's disease is associated with the destruction of brain cells that produce dopamine. In collaboration with the UA Department of Neurology, Ophthalmology hopes to develop techniques to take RPE cells from the peripheral retina of Parkinson's patients, culture them, then transplant them back into the patients' brains, thereby replacing diseased brain tissue with a new source of dopamine and restoring restore normal function.

A leading cause of blindness in the U.S., macular degeneration refers to eye disorders in which the light sensing cells of the macula (central region of the retina) malfunction and die, leading to a gradual decline and loss of central vision while peripheral vision remains. Most cases of macular degeneration occur in people over age 60, although hereditary forms of the disease can affect children and young adults as well. According to the Macular Degeneration Foundation, a new case of adult or age-related macular degeneration is diagnosed every three minutes in the U.S.; one in six Americans between ages 55 and 64, one in four between 64 and 74, and one in three over age 75 will be affected.

Dr. McKay's position at the UA Department of Ophthalmology has been made possible by a $150,000 gift from Mrs. Verna Winegar of Tucson. Her

(continued on page 2)

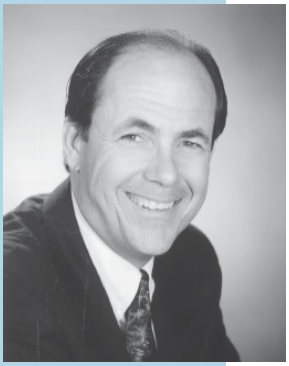
THE UNIVERSITY OF ARIZONA® HEALTH SCIENCES CENTER

From the Chairman

The Department is moving forward and continues to pursue excellence in teaching, research and service.

Our clinical program is now on sound financial footing. Our teaching programs continue to attract more medical students who opt for clerkships and rotations with our full-time and volunteer faculty. Our residency program continues to attract applicants, drawing nearly 200 highly qualified candidates for two positions.

The brightest note is the continued development of the department's research efforts. Since our last newsletter we have received word on the funding of new grants. Dr. Dan Stamer received funding for a study of "Molecular Mechanism of Myocilan Function in the Human Eye." Dr. Brian McKay, who recently joined our department, received a National Eye Institute RO3 grant to investigate retinal pigment epithelial cells (the culprits in macular degeneration).



▲ *Robert Snyder, MD, PhD*

Our goal is to reach 'critical mass' in each of the key research areas that we believe are important to the people of the Southwest where special opportunities exist for us to excel. These include:

- diseases of the aging eye (including glaucoma and macular degeneration)
- vision development
- optics and refractive surgery
- dry eye
- public health issues (including screening and intervention for eye disease in people at risk and underserved individuals)

We are encouraged by the overall success of the research program, by the newfound financial stability in our clinical programs and the students' high regard for our teaching programs.

Our thanks to all of you who have supported the Department of Ophthalmology through service as volunteer teachers, financial supporters or as vocal advocates.

Robert W. Snyder, MD, PhD

Brian McKay, PhD, Joins UA Quest to Cure Blinding Eye Diseases

(continued from page 1)

hope is that Dr. McKay's research will someday help people like her who suffer from macular degeneration.

"Donations like these are critical to acquire both the staff and equipment necessary to make RPE cell transplantation possible," says Dr. Snyder. "We would like to begin clinical studies within two years, and the necessary funds will be raised from public and private sources, in particular from donors like Mrs. Winegar who are most likely to benefit from new treatment modalities."

Dr. McKay earned his bachelors degree in biology from the University of Milwaukee in Wisconsin in 1987 and his doctorate at the Medical College of Wisconsin in 1995. His training centered on studies of retinal cell biology related to diseases of the aging eye, particularly retinal degenerations. He received his postdoctoral training at The Scripps Research Institute in La Jolla, Calif., from 1995 to 1997 before joining Duke University in July 1997.

His honors and awards include a Scripps Research Institute Award for Excellence in Vascular Biology for his work on the structural biology of adhesion molecules, and a Career Development Award from Research To Prevent Blindness. Dr. McKay has a pending grant from the National Institutes of Health to test his discovery of a new method for retinal cell cultures for suitability for retinal pigment epithelial cell transplantation.

Dr. McKay's professional memberships include the American Society for Cell Biology and the Association for Research in Vision and Ophthalmology.

His research has been published in numerous journals, including, *Experimental Cell Research*, *Experimental Eye Research*, *Investigative Ophthalmology and Visual Science*,and *Journal of Biological Chemistry*. He also serves as a reviewer for the Veterans Administration internal scientific support Merit Review panel and as a guest editorial board member of *Investigative Ophthalmology and Visual Science*.

A native of Franklin, Wis., Dr. McKay and his wife Karen, also a Wisconsin native, have been married for 15 years. Their two Norwegian Elkhounds are named Tahoe and Sierra, indicative of their love of mountains and the active outdoor lifestyle, including hiking, camping and skiing. They look forward to living in Tucson and exploring the surrounding mountains and parks.

More Than Meets The Eye

Chapter One: Born and raised in California, Joan Brock became a teacher at a school for the blind in Iowa, where she met and married a colleague, had a baby, and lived happily ever after … until one day she discovered that she couldn't tell what color her daughter's socks were. Three weeks later she lost her sight. Five years later her husband died from cancer. The life story that seemed destined to end happily had changed, leaving Joan a blind, single parent.

Chapter Two: Today, Joan is remarried, lives in Tucson, travels the world as a professional public speaker; is co-author of a book, "More Than Meets The Eye;" a spokesperson for Prevent Blindness America; the subject of an upcoming LifeTime Television Network movie; and a member of the UA Department of Ophthalmology's Advisory Board.

The end.

Or, more accurately, the beginning.

Joan regularly relives her experiences as a motivational speaker. The career actually began with her experience speaking to groups on behalf of The Iowa Braille and Sight Saving School, when she could see. Now that she's lost her sight, she speaks to corporations, associations and other groups at conventions, conferences and other gatherings, on topics such as communication, organizational skills and change. She still is raising awareness about blindness, but now as a blind person out in the world, showing people "that blind people aren't any better or any worse than anyone else." And she's making a difference in people's lives.

When she lost her own sight, Joan's insight into the world of the blind changed immediately. She had to re-evaluate and transform her life, ironically using the same skills she had taught her blind students. Her talks draw on her experiences as a disabled person, widow, single mom, businesswoman and wife trying to do it all.

She urges audiences to "play the hand you're dealt" and she challenges them to see their problems from a new perspective. She sees change as an on-going process that can be dealt with in a positive and productive way. "Life is full of irreversible opportunities, and you have a choice to see them as assets or obstacles," she says. She delivers this simple message because, she says, "people with problems need to hear from others who have learned to cope."

From her own experience living in the world of the visually impaired and blind, Joan learned that communication is the key to living and working productively. In her talks, she introduces audiences to this world of heightened perception, showing how to use all the senses to communicate effectively.

Her experiences also taught her the importance of teamwork. Having many people, including her family, providing help pulled her through the tough times. "We simply do not do life alone," she says.

The cause of Joan's vision loss remains a mystery. Doctors believe that her optic nerves were destroyed by an immune system malfunction. Not knowing why she lost her sight, Joan could have become bitter, but instead she chose to become better. "Illness and good health are issues that we all must deal with day to day," she says. "The hope is always to be able to cope and be healthy. The medical world is filled with uncertainty and hope through research."

In talking about the challenges she's dealt with, Joan's hope and enthusiasm light the way for others. There is no mystery to the story of her courage in seeing past her problems and overcoming adversity – it is clearly understood by all who hear her speak.

She may have lost her sight, but not her vision.

Board Spotlight

▲ *Joan Brock*

Department Advisory Board

President

Sandy Shiff*

Board Members

Teri Barnet

Louise Braden

Joan Brock

Vic C. Camua*

Dan D'Antimo,
Immediate Past President*

M. Velma Dobson, PhD

Pravin Dugel, MD

Mark Irvin

Jens Jantzen*

Anita Johnson*

Don Miles, MD

Joseph Miller, MD, MPH*

Thomas Perski, MA

Donna Rowe*

Robert W. Snyder, MD, PhD

Ernie Soto*

Edward E. White*

*Lions Club representatives

Thomas Perski Receives Award

Heart-felt congratulations to Tom Perski, Ophthalmology Advisory Board member – a tireless worker, a friend and a role model to us all. Owner of Southwest Low Vision in Tucson, Tom was presented with the Margaret Bluhm "Worker of The Year" award by the Arizona A.E.R. (Association for Education and Rehabilitation of the Blind and Visually Impaired) at its statewide conference for professionals October 24-25, 2002 in Prescott, Ariz. The award was given in recognition for outstanding contributions to blind and low vision people.

Tom is legally blind since college from an early-onset macular degeneration (see article in *An Eye to the Future*, Spring/Summer 2002). Upon receiving the award, he stated " I know firsthand how devastating vision loss can be, and serving those in need has become a 'higher calling' in dedicating myself in many ways to serve our profession of visual rehabilitation and the many experiencing vision loss needing our help each year. To be recognized by all my colleagues in Arizona was a shock, a complete surprise and a wonderful honor."

DEPARTMENT NEWS

Imaging Technologies for Glaucoma

by Robert Noecker, MD, associate head, clinical affairs, and associate professor, UA Department of Ophthalmology

Glaucoma is a disease characterized by damage to the optic nerve. The damage typically is caused by increased fluid pressure in the eye (intraocular pressure), due to reduced or blocked drainage. The increased pressure causes the optic nerve cells to die and disappear at a faster rate than normal, causing vision loss. Currently, glaucoma is treated mainly by decreasing the intraocular pressure, sometimes to levels below normal.

Because individuals differ in the amount of pressure that their optic nerve can tolerate, intraocular pressure cannot always be used as a guide for determining whether or not a person has glaucoma. Therefore, several diagnostic tests are used.

Typically, optic nerve photographs are taken to establish a baseline picture of a patient's optic nerve and to use for comparison with photographs taken in the future. When enough optic nerve cells are gone, the cup or hole in the optic nerve increases in size. Using these photographs, doctors look at the size of this cup when diagnosing glaucoma.

Visual field testing also is performed to determine the amount of peripheral vision that may be lost due to glaucoma. In this test, the patient looks inside a bowl-shaped instrument called a perimeter. While staring at the center of the bowl, lights flash and the patient presses a button when a flash is seen. A computer records the responses to the flashes and prints out a report showing the areas of the patient's visual field where the flashes of light weren't seen.

To help doctors detect early changes in the nerve fiber layer so that treatment can be started sooner to prevent damage from occurring, a variety of imaging devices have been developed in the last several years. These non-invasive devices use different technologies to image both the optic nerve and the nerve fiber

(continued on page 6)

▲ *Toby Aparisi, certified ophthalmic assistant and study coordinator with University Physicians, Inc., Department of Ophthalmology, uses the GDx® Nerve Fiber Analyzer to image the optic nerve of a pediatric patient. About 1 in 10,000 children develop childhood glaucoma, making it a leading cause of childhood blindness, according to the Children's Glaucoma Foundation. It may be genetic or result from other pediatric eye diseases or systemic diseases. A family history of glaucoma may indicate an increased risk for childhood glaucoma. As in adults, early diagnosis and treatment are key in preventing damage.*

In Memoriam: Jorge Rodríguez, MD, MPH

▲ *Jorge Rodríguez, MD, MPH*

Jorge Rodríguez, MD, MPH, research assistant professor in the UA Department of Ophthalmology, and president and CEO of See International, died unexpectedly Sunday, September 1, at the age of 49.

Dr. Rodríguez was nationally recognized for his research on eye disease in the Hispanic population, was much loved by his patients, and was a dear friend to his colleagues in the Department. He is survived by his wife, Lupita; son, Jorgito; and daughters, Pamela and Jetzia.

Dr. Rodríguez graduated from the Universidad Autonoma de Guadalajara and received his medical degree from the Universidad Nacional de Mexico in 1976. He completed his residency at the Hospital General de Mexico in Mexico City, and received his diploma in ophthalmology from the Universidad National in 1982. He completed a fellowship in ophthalmic microsurgery at Girard Ophthalmological Foundation and in preventive ophthalmology at the Wilmer Eye Institute at Johns Hopkins University.

He practiced in Nogales, Sonora, Mexico for many years and collaborated with local Lions Clubs in providing clinical care to underserved populations. He facilitated cataract surgery "mission trips" by local Tucson doctors to St Joe's Hospital in Nogales, Arizona. He would screen the patients and provide their follow-up care free of charge and from his own time. In 1993, he enrolled at Johns Hopkins University and completed a master's degree in Public Health.

(continued on page 6)

Ophthalmology Faculty

HEAD
Robert W. Snyder, MD, PhD

ASSOCIATE HEAD
Robert J. Noecker, MD

Harry D. Carrozza, MD
Harold E. Cross, MD, PhD
Velma Dobson, PhD
Erin M. Harvey, PhD
Brian S. McKay, PhD
Joseph M. Miller, MD, MPH
John C. Nichols, MD
Richard R. Ober, MD
Robert I. Park, MD
Lynn Polonski, MD
Jim Schwiegerling, PhD
Rand W. Siekert, OD
W. Daniel Stamer, PhD
J. Daniel Twelker, OD, PhD

Grant Funds Study To Help Understand Lazy and Crossed Eyes

As many as one in 20 pre-school-aged children may be affected by "lazy eye" (also called amblyopia), or crossed eyes (also called strabismus). These visual disorders can lead to vision loss if untreated, according to Prevent Blindness America.

To better understand the cause of these common vision problems, J. Daniel Twelker, OD, PhD, assistant professor in the UA Department of Ophthalmology, has been awarded a $30,000 Pediatric Ophthalmology Research Grant from the Knights Templar Eye Foundation, Inc. The grant is the first the Foundation has presented to an Arizona researcher.

▲ *Dr. Twelker receives a check for $30,000 from Sir Knight Robert Elsner, of the Knights Templar Eye Foundation, Inc., while Sir Knight Paul Monroe, looks on. The check was presented at the Department of Ophthalmology Advisory Board meeting on Sept. 13.*

"The funds will be used to develop a test to determine how much the eyes turn in when they focus," says Dr. Twelker. "This could lead to a better understanding of what causes lazy eye and crossed eyes."

Lazy eye is a condition in which the brain favors one eye over the other. Left untreated, the condition can lead to permanent vision loss in the affected eye. Crossed eyes, or misalignment of the eyes, can lead to impaired depth perception, decreased peripheral vision, as well as to lazy eye, if left untreated. Both conditions usually develop in infancy and early childhood. Early detection and treatment is essential in preventing permanent visual impairment.

"There are many different reasons why a child might develop a crossed eye," says Dr. Twelker. "One important reason is due to over-focusing which causes the eye to turn in. Over-focusing can be caused by farsightedness, when a child needs to over-focus to keep things clear. This usually is successfully treated with glasses. Another fairly common reason is that the eye turns in too much with normal focusing. There has been very little study of this cause, primarily because it is difficult to accurately measure."

Dr. Twelker's project will use new technology to measure the accommodative-convergence to accommodation (AC/A) ratio. "In the first phase of this one-year study, we plan to purchase the necessary equipment and assemble the experimental apparatus," says Dr. Twelker. "In the second phase, we will develop a viable procedure to accurately measure the AC/A ratio. In the third and final phase, we will evaluate the reliability of the new procedure in infants and toddlers.

"This project is necessary in order to design large clinical and epidemiologic studies of accommodative esotropia. A better understanding of the causes of accommodative esotropia could help us prevent vision loss due to lazy eye and crossed eyes." (Accommodative esotropia is crossing of the eyes caused by farsightedness. It is a type of strabismus, which refers to any misalignment of the eyes.)

The Knights Templar Eye Foundation, Inc., is a charitable foundation based in Chicago, Ill., that aids those who need help in the preservation of sight and provides funds for research in curing diseases of the eye. Since it was founded in 1956, the Foundation has made research grants totaling more than $6 million to researchers working in pediatric ophthalmology or development biology.

Don't miss these upcoming events!

Wednesday, January 29, 2003

Diseases of the Eye

6:00-8:00 p.m., University Medical Center, DuVal Auditorium, Tucson

UA Department of Ophthalmology experts will discuss macular degeneration, glaucoma, cataracts and dry eye. Refreshments provided.

Wednesday, March 12, 2003

***Science of Eye Disease Seminar*: Biomechanical Engineering and Glaucoma**

C. Ross Ethier, PhD, professor, University of Toronto, Canada
5:30-7:00 p.m.

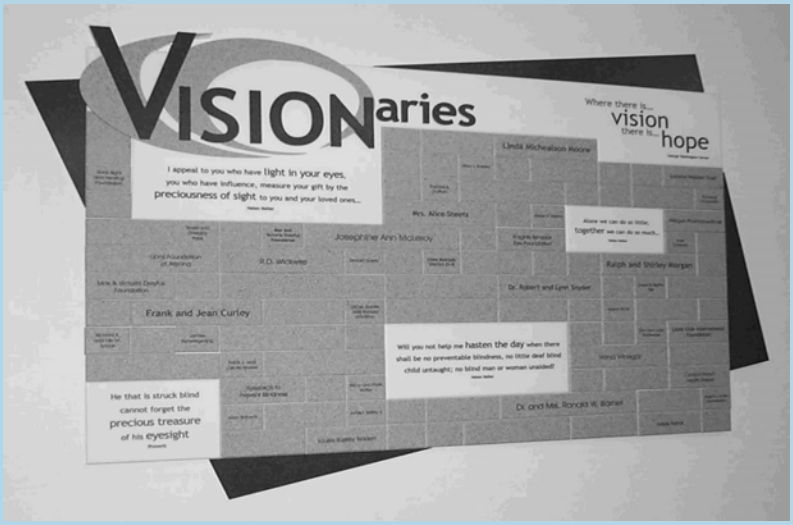
UA Department of Ophthalmology Administrative Offices, 655 N. Alvernon Way, Suite 108, Tucson

A social precedes the seminar from 5:30 to 6:00 p.m.; hors d'oeuvres and soft drinks provided. Continuing Medical Education (CME) credits given.

These events are free and open to the public. For more information, please contact our Development Director Lawney Snyder at (520) 626-2827.

Visit our website for updates: **www.eyes.arizona.edu**

Ophthalmology Donor Wall Unveiled



◀ *A special wall honoring Visionaries who have made major contributions to the UA Department of Ophthalmology was unveiled at the Advisory Board meeting on Sept. 13. The wall displays the names of those Visionaries whose contributions exceeded $5,000. (Visionaries are individuals who make a contribution of $100 or more.) The donor wall is in the lobby of the Ophthalmology Clinic at 707 N. Alvernon Way.*

Imaging Technologies for Glaucoma

(continued from page 4)

layer and assess the optic nerve changes and amount of nerve fiber layer damage. All of the tests are painless, do not require pupil dilation, and take only a few seconds to a few minutes to perform.

The Heidelberg Retinal Tomograph (HRT) uses laser imaging to create three-dimensional images of the optic nerve. Similar to an MRI (magnetic resonance imaging) or CT (computed tomography) scan, the HRT precisely calculates the shape of the optic nerve and judges how much area of the rim of the optic nerve is present. In patients with glaucoma, the optic nerve rim area is decreased compared to normal.

The GDx® Nerve Fiber Analyzer also is a laser device that directly and accurately determines the thickness of the retinal nerve fiber layer, the tissue that makes up the optic nerve. Using scanning laser polarimetry (SLP) technology, the GDx® calculates how much nerve fiber layer remains, based on the fact that a thick nerve fiber layer polarizes light more than a thin one. Test results are compared with those of other people the patient's age to determine if the patient is in the "normal" range.

Optical coherence tomography (OCT) uses reflected infrared light waves (similar to the principle used by ultrasound imaging devices) to measure the thickness of the nerve fiber layer and retina. Like the GDx®, its measurement of the nerve fiber layer thickness can be used to diagnose and track any changes due to glaucoma.

These tools are powerful aids in the diagnosis and treatment of glaucoma. The devices currently are used in several clinical research studies as well as in routine patient care at the UA Department of Ophthalmology Clinic. The devices also are available at the Ophthalmology Clinic for use by Tucson ophthalmologists in patient care.

Purchase of these devices by the UA Department of Ophthalmology was made possible by several sources: purchase of the GDx® was made possible by a research grant; the OCT, through funds derived from clinical revenue; and the HRT, through a gift from Ophthalmic Associates of Alaska.

In Memoriam: Jorge Rodríguez, MD, MPH

(continued from page 4)

Dr. Rodríguez was the initiator and a collaborating investigator with Dr. Robert Snyder for Proyecto VER. The study examined more than 4,500 Mexican-Americans over the age of 40 to determine the prevalence of eye disease in this population. In addition, Dr. Rodríguez continued to practice in Nogales, Sonora. Funded by the National Eye Institute, the goal of the three-year Proyecto VER study was to provide reliable data on the prevalence and causes of visual impairment and blindness among the research population and to identify areas where prevention and intervention would be the most cost-effective. Data from the study now is available to ophthalmologists and researchers worldwide for use as a "benchmark" for further research. The study revealed many economic, social and quality of life issues. It identified Mexican Americans as a group at exceptionally high risk for glaucoma.

More recently, Dr. Rodríguez was appointed executive vice president of See International. This non-profit organization provides nearly 40,000 sight-restoring cataract surgeries in remote camps and to underserved populations around the world. Most recently, Dr. Rodriguez organized and opened a permanent See clinic site in Juarez, Mexico, that was designed to be a permanent self-sustaining clinic and surgical project to serve the poor in Juarez.

Dr. Rodríguez had planned to return to our faculty this year and develop a section in public health and preventive eye care. He was a remarkable individual who made good use of his God-given talents. He was passionate to help others less fortunate. There are hundreds of people he helped through his own personal work and many thousands of people who now can see because of his tireless organizational and administrative efforts.

In his honor, the department will establish an annual lectureship to focus on Eye Care for Underserved People.

PUBLICATIONS AND PRESENTATIONS

BOOK

Committee on Disability Determination for Individuals with Visual Impairments, Lennie P, Van Hemel SB (eds). *Visual Impairments: Determining eligibility for Social Security benefits*. 2002; Washington, DC: National Academy Press. [Committee members: Lennie P (Chair), Bailey IL, Brabyn JA, Burkhauser RV, **Dobson V**, Gonzalez RD, Jacobs K, Johnson CA, Landy FJ, Lee PP, Legge GE, Levi DM, Owsley C, West SK, Wilson MR]

ARTICLES

Twelker JD, Bailey IL: An age-matched case-control study of risk factors for primary pterygium. *Invest Ophthalmol Vis Sci* 2002;43(Suppl):S910.

Quinn PC, Polly JL, Furer MJ, **Dobson V**, Narter DB: Young infants' performance in the object-variation version of the above versus below categorization task: A result of perceptual distraction or conceptual limitation? *Infancy* 2002;3:323-347.

Reynolds JD, **Dobson V**, Quinn GE, Fielder AR, Palmer EA, Saunders RA, Hardy RJ, Phelps D, Baker J, Trese MT, Schaffer D, Tung B: Evidence-based screening criteria for retinopathy of prematurity: Natural history data from the CRYO-ROP and LIGHT-ROP studies. *Arch Ophthalmol* 2002;120:1470-1476.

Patel H, **Cross H**, Proukakis C, Hershberger R, Bork P, Patton MA, McKusick VA, Crosby AH: SPG20 is mutated in Troyer syndrome, an hereditary spastic paraplegia. *Nature Genetics* 2002;31:347-348.

Nichols JC, Lee BH, Feman SS, Shields SR: Severe pupil distortion following trans chamber repair of a cyclodialysis cleft. *Ophthalmic Surg Lasers* 2002;33:426-429.

Quinn PC, Polly JL, Furer MJ, **Dobson V**, Narter DB: Young infants' performance in the object-variation version of the above versus below categorization task: A result of perceptual distraction or conceptual limitation? *Infancy* 2002;3:323-347.

Schwiegerling J: Scaling Zernike expansion coefficients to different pupil sizes. *J Opt Soc Am A* 2002;19:1937-1945.

Schwiegerling J, **Snyder RW**, **Lee JH**: Wavefront and topography: Keratome-induced corneal changes demonstrate that both are needed for custom ablation. *J Refract Surg* 2002;18:S584-S588.

Miller JM, Anwaruddin R, Straub J, **Schwiegerling J**: Higher order aberrations in normal, dilated, intraocular lens, and laser in situ keratomileusis corneas. *J Refract Surg* 2002;18:S579-S583.

Twelker JD, Bailey IL: Assessing symptoms of primary pterygium dimensions. *Optom Vis Sci* 2002;79(Suppl):78.

Cryotherapy for Retinopathy of Prematurity Cooperative Group: Multicenter trial of cryotherapy for retinopathy of prematurity: Ocular outcome at 5.5 years in premature infants with birth weights <1251 g. *Arch Ophthalmol* 2002;120:595-599. [Writing Committee: Palmer EA (chair), Hardy RJ, **Dobson V**, Krom C, Phelps DL, Quinn GE, Summers CG, Tung B]

EXPLANATION OF PUBLICATION AND PRESENTATION INFORMATION

Publications
Author(s): Article title. *Journal* Year Published; Journal Number: Journal Page Number(s).

Presentations
Presenter: Presentation Title. Name of Conference/Organization, Presentation Location, Conference/ Presentation Date(s).

PRESENTATIONS

Mohan KM, **Miller JM**, **Harvey EM**, **Dobson V**: Vision problems among Native American Head Start children. Poster presented at Head Start's 6th National Research Conference, Washington, DC, June 26-29, 2002.

Adams I, **Lopez F**, **Harvey EM**, **Miller JM**: Head Start vision screening: Identifying and targeting population specific vision problems. Poster presented at Head Start's 6th National Research Conference, Washington, DC, June 26-29, 2002.

Schwiegerling J: A primer to ocular wavefront: Background, measurement and use. Oral presentations at the Refr@ctive.on-line, Topogr@phy.on-line, @berrometry.on-line Course, Milano, Italy, September 11-14, 2002.

Dobson VD: Meridional amblyopia in children with astigmatism: A visual effect of selective deprivation. Annual University of Arizona Neuroscience Retreat, Madera Canyon, AZ, October 5, 2002.

Stamer WD: Inner wall of Schlemm's canal and outflow resistance. XIV International Congress of Eye Research, Geneva, Switzerland, October 6-11, 2002.

Miller JM, **Sherrill DL**, **Harvey EM**, **Dobson V**: The stability of astigmatism in Native American preschool children. Poster presented at Fall Vision Meeting, San Francisco, California, October 24-27, 2002.

Dobson V, **Miller JM**, **Harvey EM**, **Mohan KM**: Amblyopia in astigmatic preschool children. Poster presented at Fall Vision Meeting, San Francisco, California, October 24-27, 2002.

Miller JM: (1) Vision screening–What's new: Emphasis on the Native American and preschool child, (2) Vision problems of Native American children, (3) The Amblyopia Treatment Study–Alternative to the Patch, Arizona Optometric Association, Scottsdale, November 17, 2002.

Dobson VD: Testing vision in infants and children. Pediatric Research Group, Tucson, Arizona, November 26, 2002.

AN EYE TO THE FUTURE newsletter is published by the UA Department of Ophthalmology to share news and showcase research activities. Correspondence or inquiries should be addressed to: Newsletter, UA Department of Ophthalmology, 655 N. Alvernon Way, Suite 108, Tucson, AZ 85711; phone (520) 322-3800 ext. 200.

The University of Arizona
Department of Ophthalmology
655 N. Alvernon, Suite 108
Tucson, AZ 85711

NON-PROFIT ORG.
U.S. POSTAGE
PAID
TUCSON, ARIZONA
PERMIT NO. 190

Our Mission Is to Benefit the People of Arizona, the Southwest and Beyond

Entering the 21st Century:

♦ In the U.S., one child in 20 may suffer abnormal eye development. These children are at risk for serious vision problems that may lead to permanent vision loss.

♦ Glaucoma is the leading cause of preventable blindness in the United States, affecting an estimated 3 million Americans. It is a silent villain that, with little or no warning, robs a person of their ability to see. Once destroyed, vision lost to glaucoma cannot be restored.

♦ Age-related macular degeneration causes visual loss in about 1.2 million people in the U.S. By age 60, nearly 15 percent of Americans develop symptoms of ARMD; by age 80, the percentage rises to nearly 40 percent.

With the latest laser applications, computers and other new technologies, we enter the 21st century with far greater hope for preservation of vision. However, we continue to seek better answers for eye conditions, such as glaucoma and retinal diseases that are still major causes of blindness.

UA Department of Ophthalmology

The UA Department of Ophthalmology is dedicated to preserving healthy eyesight and preventing blindness through innovative research and comprehensive eye care for all patients whose vision is threatened by eye disease or injury.

Become an Annual Member of the VISIONaries

We invite you to support the exciting work of the UA Department of Ophthalmology. Gifts of all sizes have been utilized throughout the Department, in the clinics, and in the research laboratories, helping the Department increase medical knowledge and offer the best possible vision care.

♦ **Donors of $1,000 or more will have their name listed on the permanent donor recognition wall at the Lions Eye Care Center.**

To find out more about the many other ways in which you can participate in our mission, contact the UA Ophthalmology Development Director, (520) 626-2827.

Enclosed is my fully tax-deductible gift of $_____
to UA Foundation, Ophthalmology Department.

☐ Check ☐ VISA ☐ MasterCard

Number_____ Exp. Date_____

Signature_____

Name_____

Address_____

City_____ State____ Zip_____

Memorial/Tribute Gifts

☐ In memory of _____

☐ In honor/tribute of _____

Please notify _____

Address_____

City_____ State____ Zip_____

Please make your fully tax-deductible check payable to:
UA Foundation, Ophthalmology Department

The UA Department of Ophthalmology
655 N. Alvernon Way, Suite 108
Tucson, AZ 85711