DEAN A. MCGEE EYE INSTITUTE



VISION CARE • RESEARCH • EDUCATION • COMMUNITY

SPRING • 2003

The Profession of Medicine

My son will enter medical school this year.

Many people, including most physicians, say to me "You must be so proud". I am proud—of his academic accomplishments and of his career choice, but even more so of his integrity, of his dedication to his friends, his intolerance of injustice, and of his character.

Another group of physicians say to me, "How could you want your son to have to practice medicine the way it is today." They speak of the long hours and intensity of the work, but even more so of the increasingly intrusive business of medicine, the regulatory interference in the patient care process, our litigious society, and

the daunting expectations that patients have for healthcare outcomes.

There is no doubt that the profession of medicine is evolving more rapidly than at any time in its history. Part of this is due to the frantic pace of technological change the societal and this expectations engenders. The doubling time of medical knowledge is said to

be under three years – by 2006 there will be twice as much medical information to learn, remember, and apply correctly as there is in 2003. Part of this is also due to the changing socioeconomic matrix in which medicine is imbedded. Only twenty years ago a patient made an appointment to see the physician of his or her choice. The physician decided upon the best course of care, and the physician for his insurance paid the physician for his or her services. It was a simple social compact.

Today some physicians market to patients for their "business" as do pharmaceutical companies. The patient must determine if the doctor is 'on your plan'. Plans set the fee,



David W. Parke II, M.D. DMEI President and CEO

"How could
you want
your son to
... practice
medicine the
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today?"



Cynthia Bradford, M.D., Associate Professor of Ophthalmology, instructs a medical student in the use of a slit lamp biomicroscope.

and frequently seem to do their very best not to pay it. A physician's choice of diagnostic workup or therapy may be limited by what the plan will authorize – much to the frustration of physician and patient alike. Medicare billing regulations actually have more pages than the federal tax code! On top of all that, the average physician in

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DMEI FACULTY PROFILE: ROBERT E. LEONARD II, M.D.

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America will be sued about every six years for medical malpractice. No wonder some of my peer physicians are frustrated. The very values and systems they have held dear for millennia are changing. Those unhappy physicians had expectations for their career that have not been met.

Why then am I so pleased and proud with my son's decision?

It is because he has chosen to enter the profession of medicine, not just the business of medicine. And that profession carries with it some very special and unique privileges as well as some very special and serious obligations.

These privileges and obligations are



Michael S. Gilmore, Ph.D., discusses research techniques with students in his lab.

unique to the concept of professionalism and some specifically to the medical profession itself. Their spirit is embodied within the professional oath taken by every physician. The physician has the knowledge, skills, responsibility, and opportunity to help the human condition more intensely and personally than most anybody else on this planet.

Each physician is steward of a knowledge and skill base far beyond that of most other fields, and he or she must behave with the competence and integrity to employ that in the best interest of the patient. Each physician also has the obligation to enhance that same fund of knowledge to ultimately benefit society. This professionalism is the basis of medicine's contract with society. Essential to this societal contract is trust – the public's trust in the physician. A physician should do nothing to put that trust in jeopardy.

The physician-patient relationship has changed, and it's been disconcerting and frustrating for many physicians. Certainly the change has its negative aspects. Ask any physician who's had to

explain over and over again that just because an internet web site says that putting electric current across your forehead cures macular degeneration doesn't mean it's true. Technology has also enhanced the

"Life is more complex and challenging for today's physicians, but the opportunities to impact the lives of individual people have never been so bright."

relationship. A truly informed patient makes better, independent decisions.

Consumerism has dramatically impacted medicine. People are increasingly concerned with health – not just treatment of disease.

Multibillion dollar industries have grown up to service the public's interest in controlling their health through holistic medicine, nutritional supplements, lifestyle modification programs, etc. It has spawned consumer-driven services in preventive medicine – all the way from

in preventive medicine – all the way from mammography and glaucoma screening (with proven benefits) to consumer-initiated total body MR scans (that generate dollars but as yet generate no proven health care benefit). This has all been facilitated by the internet and information hunger. (Note that information is

different from knowledge). Some of my new patients from rural areas arrive with reams of internet downloads that popped up on Yahoo® and Google® pertaining to their presumed

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The training of tomorrow's ophthalmologists will always be a critical focus of our mission. Hundreds of American medical students apply every year for three new DMEI residency positions. They then spend three years (for a total of nine residents at any time) learning the art and the science of ophthalmology. Some then elect to devote an additional one to two years of fellowship training at DMEI or another teaching center. (DMEI takes up to four such fellows each year).

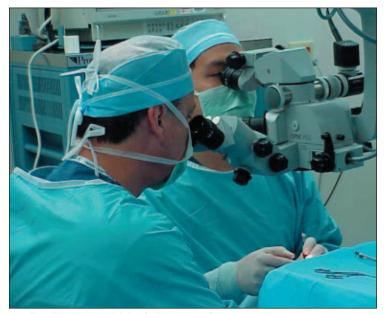
"We have kept the training program small to ensure a tremendous clinical opportunity for each resident and to maintain one of the country's highest faculty to resident ratios. I'll put the clinical training our residents receive up against any program in the country," noted Scott C. Sigler, Associate Professor of Ophthalmology and Director of the Residency Training Program. National residency program accreditation standards require that residents personally perform a minimum of about 100 surgeries. DMEI's residents perform over 600. A typical ophthalmology residency program has about 10 faculty ophthalmologists. DMEI has 30 faculty ophthalmologists.



Dr. Sigler, both an ophthalmic plastic surgeon and an ophthalmic pathologist, points out the microscopic features of eye tumors to a group of residents.

diagnosis and putative cures. These same patients also sometimes find it difficult to understand why diagnoses are sometimes still elusive and why their disease may not be curable or their vision loss not completely restorable. (Sometimes so do I).

Most patients don't appreciate the bureaucratic complexity and federal and state regulations involved in accessing their physician. The first fifteen minutes of a new patient's appointment will be spent filling out forms, signing



Dr. Farris and his fellow perform optic nerve surgery.

consents, and reading privacy policies. Physicians hate it too. It's confusing, depersonalizing, and expensive.

I don't agree with those who say that changes in the health care system have doomed medicine to fall from professional grace. Life is more complex and challenging for today's physicians, but the opportunities to impact the lives of individual people have never been so bright. New technology, designer drugs, gene transfer, microsurgery – all give today's physician wonderful new opportunities to treat or cure diseases – diseases that in the past always blinded or killed.

There is much unknown and left to be dis-

covered in the science of medicine. There is much left to be solved as well in the optimal delivery of that sci-

"They've met some of those patients, and they've felt the human impact."

ence. Today's physicians in training will solve many of them. How do we reduce medical errors? How far can we reduce them? How can we as a society best solve the problem of health coverage for our nation's poor? How will we ultimately cope with the difficult decisions of rationing care?

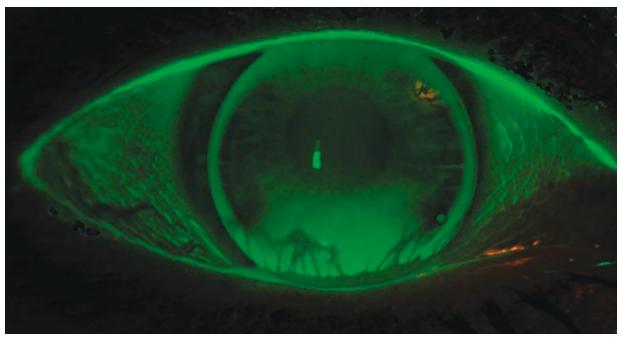
Why am I not concerned about my son as he enters the profession of medicine at this time? Because he has a realistic set of expectations. He has grown up with the explosion of science, technology, and information systems. He is used to a fast pace of change. He is better prepared to shape medicine's future.

My children have also seen the practice of medicine as it really is. They've seen their mother in bed reading her pediatric neurology journals. They've grown up with their parents jetting off (at times monthly) to medical meetings – to teach and to learn. They've seen that medicine is judgment, art, and playing hunches as much as it is the application of science. They've listened to our stories after we return from the state capitol or from Washington as we advocate for our patients and for our profession. They understand medicine's uncertainties and the physician's (like any human's) fallibilities.

But they've also listened in the evening as we come home excited about a diagnosis we made, an operation that succeeded against all odds, a child's life saved, or vision restored. They've met some of those patients, and they've felt the human impact. They know that if my wife and I had to do it all over again, we'd choose medicine in a heartbeat.

Ultimately, we as physicians are given a tremendous gift – the opportunity to change a life every single day. I love the profession of medicine, and I know my son will too.

DMEI CONTACT LENS SERVICES: 10 YEARS AND GROWING



A new trifocal gas permeable contact lens highlighted by green fluorescent dye.

Contact lenses have certainly come a long way. Some people have vivid (and not particularly pleasant) memories of the hard contact lenses of the 1960's and 1970's that were painful at first to wear and difficult to keep clean. Contact lenses today are frequently disposable, comfortable to wear, and

"Contact lenses today are frequently disposable, comfortable to wear, and at times a fashion statement. (and) in the hands of expert fitters, they may be the best solution to a number of refractive conditions."

at times a fashion statement. However, in the hands of expert fitters, they may be the best solution to a number of refractive conditions.

The Contact Lens Clinic at Dean A. McGee Eye Institute has come a long way as well, having celebrated its 10-year anniver-

sary last October. Originally a single department located in the main DMEI Oklahoma Health Center location, contact lens services are now also available at four locations in the Oklahoma City metropolitan area, including northwest Oklahoma City, Edmond and Midwest City.

"Over the past 10 years we've established a department that meets a full range of patient needs, from those who simply prefer contact lenses over glasses, to unique problems that only contact lenses can help correct," explained Jean Ann Vickery, FCLSA, Director of DMEI Contact Lens

Services.

In addition to Ms. Vickery, the Contact Lens Clinics staff includes contact lens fitters who are nationally-certified technicians. They actively participate in studies to develop new contact lens technologies and participate in

Continued on page 6

ongoing education programs.

Frequently contact lenses are medically indicated, Ms. Vickery said. Her certified staff – Mika Hague, Carri McGuckin, Keri West, and Wanda Fisher – are experienced at finding solutions to correct problems that stem from surface irregu-

larities, uneven refraction, eye diseases, congenital problems, developmental conditions and more. And, they are experienced at helping patients of all ages from newborns to the senior patient.

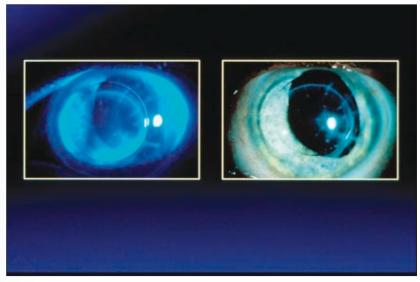
Some examples of conditions helped by contact lenses include:

- Serving as a new surface for the eye to neutralize irregularities, including those following a severe corneal injury.
- Helping corneal transplant patients achieve the best vision.
- Neutralizing the uneven light scatter experienced over the surface of irregular corneas caused by keratoconus, a disease that causes a bowing forward of the cornea. Contact lenses may eliminate the need for a transplant operation.

"This level of service sets us apart."

• Fitting a lens on an infant's eye after the surgical removal of a congenital cataract.

"We have designed our clinics so we can work in a one-on-one situation with not only the patient to get the best optical result, but also frequently with the



A knife injury cut the cornea of this eye and caused severe injury to the eye's interior. Corneal transplantation was required, and a special contact lens now provides excellent vision.

family," Ms. Vickery explained. "It's not your average contact lens visit. Our contact lens fitters work with the referring doctors to best meet their patients' needs. This level of service sets us apart. We sit down with the patient and clinically assess their needs and give them the full spectrum of care. Then we follow up with them so they maintain their optimal vision."

Although many DMEI contact lens patients have been referred by other physicians, patients who self-refer are also accepted, as long as they have evidence of having a complete eye exam within the past year.

2002 ANNUAL APPEAL

IN SUPPORT OF INDIGENT CARE

The physicians and staff at the Dean A. McGee Eye Institute (DMEI) want to express their appreciation to all of you who supported the 2002 Annual Appeal. It was a huge success thanks to our many friends who so generously supported the campaign to enable the Institute to continue to provide care for our indigent patients. In the past three years, the amount of such care has increased by 40 percent!

The Annual Appeal raised more than \$61,000 from 286 donors. They contributed to help those patients at DMEI who cannot afford treatment and have few other places to go. This past year alone, DMEI provided over \$2 million in uncompensated care to patients in the Oklahoma region. Every single gift received in response to the annual appeal will help pay for the eye care for those patients. We are truly grateful to each and every one of you.



Penny Mills Voss Vice President for Development, DMFI

THE DEAN A. MCGEE EYE INSTITUTE FOUNDATION:

The Dean A. McGee Eye Institute Foundation, established in 1992, is a separate 501(c)(3) nonprofit organization. The Foundation supports research, education and patient care activities at the Dean A. McGee Eye Institute. It is funded by contributions from friends, grateful patients, faculty, staff, corporations and foundations who give generously each year. These gifts help DMEI to carry out its mission to serve our community through excellence and leadership in eye care, education and vision research.

The Foundation is governed by a board of directors who oversee the investment policies and administration of the Foundation's assets and the granting of its funds. Current Foundation board members are Stanton L. Young, Chairman, William M. Bell, Nancy Payne Ellis, Dennis McGrath, and G. Rainey Williams, Jr.

HOW TO MAKE A GIFT

Gifts to the Dean A. McGee Eye Institute Foundation can be restricted to vision research, patient care or medical education. Similarly, your gifts can be unrestricted, making funds available for the changing needs of the Eye Institute. The attached self-addressed return envelope has been included to provide you with an easy way to make a gift to the Foundation. Just fill in the appropriate information on the envelope and return it with your check or credit card information to the Dean A. McGee Eye Institute Foundation. After your gift has been processed, we will send you an acknowledgement and receipt for your records.



CALENDAR YEAR 2002 GIVING BY LEVELS

RECOGNITION:

The Dean A. McGee Eye Institute would like to recognize and to honor the hundreds of individuals, corporations, foundations and organizations that have so generously supported the Institute this past year through their gifts and pledges. We hope that you will take a minute to look at the names of the people and institutions whose gifts have improved the quality of life for so many in this state and surrounding areas and whose support of vision research has advanced eye care for all.

Ms. Connie Garrick

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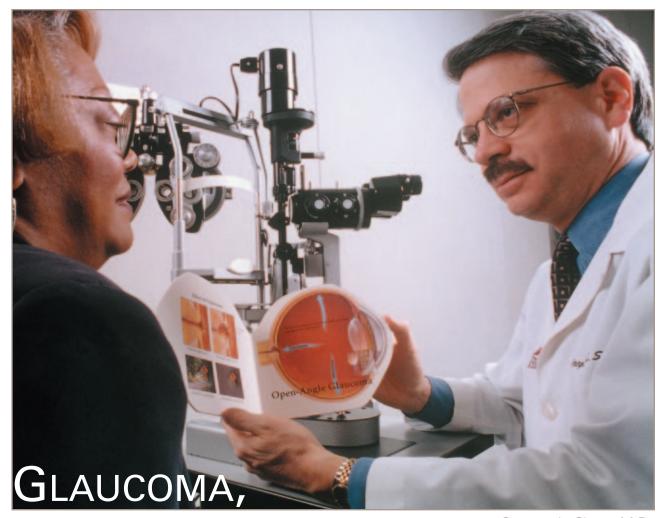
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2003 AND BEYOND

Gregory L. Skuta, M.D., Luton Clinical Professor of Ophthalmology, explains glaucoma treatment to a patient.

Glaucoma continues to be a major cause of blindness in the United States, especially among persons over 65 years of age and in African Americans, who are often younger at the time of diagnosis. Not too long ago glaucoma treatment was limited to a small number of medicines and surgical procedures to lower the pressure in the eye. However, our diagnostic techniques, medical treatment and surgical options for glaucoma advance more rapidly now than ever before. DMEI's glaucoma subspecialists Gregory L. Skuta, M.D. and Adam C. Reynolds, M.D. are playing an important role in this process.

Glaucoma has often been called the "thief of sight" as it often causes no symptoms until its later stages. Early in its course, there are often small changes in the peripheral or side vision that the patient does not even notice. Because there are usually no symptoms, early detection and treatment is crucial to help control the disease and greatly decrease the chances for irreversible loss of vision and disability.

Most but not all people with glaucoma have abnormally high eye pressure measurements (like an overinflated tire). High eye pressures remain a major risk factor for glaucoma, but blindness from glaucoma is due to damage to the optic nerve. (The optic nerve connects the eye to the brain.) People who have a family history of glaucoma, are over age 50, or are African American should have periodic dilated eye exams to examine the nerve in addition to having the eye pressures measured.

A new tool available at DMEI to help in early diagnosis of glaucoma is called Ocular Coherence Tomography, or O.C.T. 3 for short. This new instrument can

image individual cell layers of the retinal nerve fibers that lead to the optic nerve. This image, which can be likened to an MRI or CT scan of the optic nerve, can be helpful not only in diagnosing glaucoma but in monitoring the response to treatment.

While it has always been assumed that lowering the eye pressure is effective in treating and preventing glaucoma, new major studies have now confirmed this important fact. One of these studies, the Ocular

Hypertension Treatment Study, for which Dr. Skuta served on the national monitoring committee, also showed that it is important to measure the thickness of the cornea, the clear window in the front of the eye. Measuring the thickness of the cornea has now become an important part of many glaucoma evaluations at the Institute.

Another major national study, the Collaborative Initial Glaucoma Treatment Study (CIGTS), in which the McGee Eye Institute was a participating center, has provided new and critical information on the relative effectiveness of medicine versus surgery in glaucoma management. Medical therapy is much more powerful now due in part to the release of several new pressure-lowering agents. The most powerful of these drugs are known as prostaglandin analogs, which have been particularly well received by both oph-

"While it has always been assumed that lowering the eye pressure is effective in treating and preventing glaucoma, new major studies have now confirmed this."

thalmologists and by patients because of their effectiveness, safety, and the fact that they only need to be used once daily, usually at bedtime. "The McGee Eye Institue has been and will continue to be involved in the evaluation and comparison of new medical therapies for glaucoma," notes Dr. Reynolds.

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Russ Burris, Manager of Diagnostic Imaging, uses O.C.T. technology to provide a high resolution image of the retina and its nerve fibers.

Surgical innovation has also been an important focus at the McGee Eye Institute. Traditional glaucoma sur-

techniques that reduce these risks, but

still achieve adequate glaucoma control,

gery, although effective, can sometimes be associated with significant risks. Identification of

"It is our goal to not only offer our patients the best in today's care for their disease, but also to participate scientifically in tomorrow's cure."

Finally, in the area of genetics, clinicians and scientists at the McGee Institute have collaborated with investigators from the

University of Michigan with the hope of identifying the gene for

a relatively rare but serious condition known as nanophthalmos. Persons with this condition have very small eyes and can develop severe forms of glaucoma. It is hoped that discovery of the gene will help us better understand and treat this condi-

tion.

Glaucoma remains one of the most significant causes of vision loss in the United States. Finding its causes and its cures involves teams of innovative ophthalmologists and basic scientists around the world. As Dr. Skuta notes, "It is our goal to not only offer our patients the best in today's care for their disease, but also to participate scientifically in tomorrow's cure."



Adam C. Reynolds, M.D.

coma surgery worldwide.

In the coming year,
Drs. Reynolds and

constitutes a high sur-

Skuta, for example,

did some of the initial scientific work on the

use of antimetabolite

therapy to increase the success rate in

That therapy is now a

standard part of glau-

surgery.

glaucoma

gical priority.

Skuta, among a select number of national glaucoma subspecialists, will be involved in two major trials of new "leading edge" glaucoma surgical techniques. In one study, a monoclonal antibody will be administered that blocks one of the growth factors that can lead to scarring after incisional glaucoma surgery. The other surgical trial will involve a new type of almost microscopic tube that, when carefully placed in the eye, allows the high pressure aqueous fluid to drain directly into its normal drainage system (rather than by creating an entirely new "bypass" for fluid drainage as in most current surgeries).



The DMEI Midwest City office recently completed substantial remodeling and expansion of its offices. Increased demand for DMEI services in the area and new technology led to the need for additional space. The office at 8121 National Ave., Suite 407 is home to Darrell J. Pickard, M.D., R. Randall Robinson, M.D., and Selina R. McGee, O.D. Comprehensive eye care, ophthalmic surgery, and contact lens services are all available at that location.

LARGEST NIH GRANT IN OKLAHOMA HISTORY

The Dean McGee Eye Institute and OU's Departments of Ophthalmology and Cell Biology were recently awarded the single largest grant ever given by the National Institutes of Health in the state of Oklahoma. This grant is funded by the National Institutes of Health through their Center of Biomedical Research Excellence (COBRE) program. The total dollar amount awarded is \$11, 389,397, and the duration of the grant is five years. Robert E. Anderson, M.D., Ph.D., Dean A. McGee Professor of Ophthalmology and Professor and Chair of Cell Biology serves as the grant's Principal Investigator, although over ten faculty are involved. Dr. Anderson also is Director of Research at DMEI.

The COBRE award "Mentoring Vision Research in Oklahoma" will support eye research for five promising junior investigators, four of whom have their research laboratories at DMEI. Also supported are six

Robert E. (Gene) Anderson, Ph.D., M.D., in his molecular biology laboratory with post-doctoral fellows.

that provide essential services the five eye researchers their research projects. key to this program that each young investigator has one or two mentors to guide them through the early development of

core modules

their independent research careers," notes Dr. Parke. "This dramatically increases the likelihood that they will be successful in rapidly launching their own careers in vision research."

This award will relieve the young investigators of one of the most onerous tasks they face in establishing a new research laboratory, namely spending much of their time writing research proposals in order to support the early, sometimes innovative stages of scientific investigation. As Dr. Anderson put it, "They can concentrate on the science." The COBRE grant removes much of that burden by guaranteeing large support for up to five years. "During this period of time, however, their performance will be constantly reviewed and assistance given to make sure that the support is well placed," says Dr. Anderson. The mentors are established eye researchers on the OUHSC campus.

This very large COBRE grant represents a major accomplishment for DMEI eye research. The benefits are far reaching because it permits DMEI to increase substantially the number of outstanding young eye researchers on campus. As young investigators are "weaned" from the COBRE support, other young investigators will be recruited and receive their additional funding via this mechanism. This translates into multiple benefits for the citizens of Oklahoma, from the increase in revenue for the Institute, university, and state to the accelerated discovery of causes, treatments, and cures for blinding eye diseases.

In addition to the COBRE grant, there are also two other vision research "center grants" housed primarily at DMEI. One is from the Foundation Fighting Blindness and is part of a Southwest Regional Center that supports

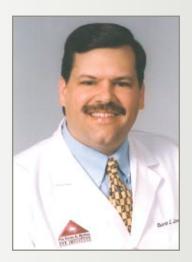
DMEI work on biochemical mechanisms of retinal degeneration. The total support for this grant is \$472,457 (five years). The third center grant is funded by the National Eye Institute, part of the National Institutes of Health, and totals \$2,436,690 over five years. The purpose of the NEI core grant is to provide core support for established eye researchers on the OUHSC campus. The NEI Vision Center Grant, called a P30 grant, is the first of its type to be funded in any area of biomedical research in Oklahoma. This grant and the COBRE grant are complementary-one supports research of established investigators and the other supports research of young investigators in the formative years of their career. These three center grants provide tremendous support for vision research programs at the DMEI and guarantee a continuity of support for essential services necessary for the cutting edge research ongoing in the Institute's vision research laboratories.

Over the last 10 years, there has been a tremendous increase in research support at the DMEI. In 1993 there was less than \$100,000 in NIH funded research at DMEI and the Department of Ophthalmology. Last year, they were 21st among ophthalmology departments in total NIH funding. When this year's figures are released, they are expected to rank within the top ten nationally. Vision research ranks as the most productive area of scientific investigation in the entire University of Oklahoma College of Medicine.

Dr. Parke concludes, "You don't get this kind of highly competitive grant support just from writing good grant applications. You get it for doing lots of innovative, important, and careful science. These recent grants reflect the fact that the national scientific community recognizes the talent, the intellects, and the productivity we have here at the McGee Eye Institute and at OU's Department of Ophthalmology."

DMEI FACULTY PROFILE: ROBERT E. LEONARD II, M.D.

It might come as a surprise to know that Robert E. Leonard II, M.D. is the son of Bob Leonard of Bob's Bar-Be-Que fame. Dr. Leonard grew up in Ada, Oklahoma, where he worked in the family business with his late father. Much to his dad's delight, the



Robert E. Leonard II, M.D.

young Leonard became interested in medicine and science. But it was here in the Ada restaurant that Dr. Leonard learned a lesson that has served him his entire career: the hallmark of good service is public satisfaction.

"My dad used to say, 'the customer is always right'," Dr. Leonard said. "Medicine is a professional service of the highest order. Physicians need to be attuned to the patients desires and wishes and address their concerns."

Dr. Leonard graduated from East Central University in 1988. He attended the University of Oklahoma College of Medicine where he graduated at the top of his class, winning numerous academic including Upjohn honors the Achievement Award, Mark R. Everett Scholarship Award, membership in the Alpha Omega Alpha Medical Honor Society and two separate research awards. He then accepted a residency at the prestigious Bascom Palmer Eye Institute in Miami.

In Miami, Dr. Leonard's interest in retinal diseases grew. In 1996, he was

asked to become Chief Resident. Dr. Leonard completed a fellowship in vitreoretinal disease in 1997, and served as Chief Resident until July of 1998. "Training at Bascom Palmer was a truly wonderful experience," he recalled. "It was a privilege and honor to learn vitrectomy surgery from the place that it originated, and that was a dominant force in training modern vitreoretinal surgeons. It was an experience I shall never forget."

Following his training, Dr. Leonard Dallas-based Texas Retina Associates before returning home to Oklahoma. Having served on faculty at Dean A. McGee Eye Institute for more than two years now, Dr. Leonard finds great personal satisfaction from teaching residents and conducting clinical research as well as participating in patient care. "It is gratifying to see patients respond to treatment, but it is thrilling to see patients respond to care from the residents and fellows that you teach. We are training the future of Oklahoma ophthalmology."



Digital image of the retina demonstrating damage from both hypertension and diabetes mellitus.

Clinical research in macular degeneration has become an important part of Dr. Leonard's work at Dean A. McGee Eye Institute. Research projects under investigation include new intraocular drugs for 'wet' macular degeneration and implantable miniature telescopes for dry macular degeneration. "Macular degeneration is the leading cause of visual loss in patients over the age of 60 in the United States," Dr. Leonard said. "New drugs that fight the vessels that cause wet macular degeneration represent the future of treating this disease."

Dr. Leonard is the Principal Investigator in the Eyetech studies at Dean A. McGee Eye Institute. This new drug is an inhibitor of new blood vessel growth that may provide important benefits for both macular degeneration and diabetic retinopathy. "We were honored to become one of 20 initial sites in this country to offer this new treatment. It holds tremendous promise for preventing and even reversing vision loss," he said. "The Eyetech trial is currently recruiting patients, as is the implantable miniature telescope trial."

"We were delighted to be able to recruit Bob Leonard back to Oklahoma," said Dr. Parke. "He represents the best of the best in Oklahoma's native sons. He worries about every single patient and offers only his best–every single time. He is a perfect role model for our physicians in training – a clinician at heart but committed to the scholarly advancement of our field and to the teaching process."

Dr. Leonard currently lives in Edmond, with his wife Adrienne, and their two daughters. Brooke is four years old and Laura is six years old. Dr. Leonard's hobbies include golf and competitive shooting sports, as well as hunting and fishing.

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