In Sight
2013
Advancing
Our Understanding
and Treatment
of Eye Diseases

UW Medicine
The new UW VISION SCIENCE CENTER at UW MEDICINE SOUTH LAKE UNION features over 20,000 square feet of space devoted to vision research, and houses laboratories from the Departments of Ophthalmology, Biochemistry, and Bioengineering, all working together to find new treatments for blinding eye disease.
As 2013 winds to a close, we can reflect on another good year for the University of Washington Department of Ophthalmology.

We continue to pursue our mission of eliminating suffering from eye disease, through our clinical care, our education, our research, and our service.

Our clinical care continues to thrive. At the UW Medicine Eye Institute, we received the green light to expand our services and open a new ‘pod’ of eye lanes, bringing our total on the floor to 32. We were also very fortunate to have acquired our first femtosecond laser. This very advanced piece of technology will facilitate our refractive surgery practice, and will also be used for complicated cataract surgery. Demand for our services continues to grow at all of our sites of practice including Seattle.
Childrens Hospital, the Puget Sound VA Hospital, University of Washington Medical Center, and UW Neighborhood Clinics.

In the education domain, we welcomed our first expanded class of five residents to the department in July. The expansion of our residency has allowed creation of a combined research/pathology rotation, providing our first year residents more in depth exposure to the fundamentals of eye disease. We also welcomed new oculoplastics and uveitis fellows this year. For the second consecutive year, we partnered with University of British Columbia, hosting a very successful ‘Gained in Translation’ meeting in September. Through the generosity of Joan Bergy, we also completed our first academic year’s Bergy Lectureship of basic scientist speakers, and also successfully raised funds to begin the James Hargiss, MD Lectureship in oculoplastics.

Perhaps our biggest news of the year was the opening of our beautiful new research laboratories, in the South Lake Union 3.1 building. The new UW Medicine Vision Science Center occupies parts of 3 floors of this state-of-the-art research space, and represents the Department’s first new lab space since the 1970’s. Most of the existing laboratories in the department moved to the new space in May, just after Seattle had the privilege of hosting this year’s ARVO meeting. Our research endeavors got a substantial boost with the initiation of the Alida and Christopher Latham Fellowships for junior faculty research. In other research news, Research Professor Mike Mustari, PhD was named Director of the Washington National Primate Research Center at UW after a national search. And my own laboratory was recognized this year with my election to the Alcon Research Institute, and our winning an ‘Audacious Goals’ award from the National Eye Institute. Submitting together, Mike Mustari, Jay and Maureen Neitz, and I were co-recipients of a large, new NIH R24 award to pursue chemical treatments for blindness.

Our faculty continue to provide outreach and service to our community and our profession. Atma Vemulakonda, MD, finished the American Academy of Ophthalmology’s (AAO) Leadership Development Program, and received national attention for his project to bring telemedicine to ophthalmology education. And I have been fortunate to have been elected President-Elect of the AAO, as well as to the Board of Trustees of the Association of University Professors of Ophthalmology.

We thank you for your support of our Department in 2013, and look forward to a terrific 2014!
Our mission
is to eliminate the suffering caused by eye disease.
We do this by treating each of our patients
with the finest state-of-the-art, compassionate,
professional medical and surgical care;
by teaching the next generation of physicians to do the same;
and by furthering the state-of-the-art
through the application of rigorous science
to the art of ophthalmic medicine.

Innovation
is our lifeblood.

RESEARCH AT THE UW MEDICINE VISION SCIENCES CENTER
is leading to the discovery of next-generation tools for
diagnosing, preventing, and treating all manners of eye disease,
including macular degeneration, glaucoma, diabetic retinopathy,
inflammatory eye disease, cataract, and hereditary eye disease.
As physicians, we take great pride in the quality of our care and in exceeding patient expectations every day.

OUR PHYSICIANS AND SCIENTISTS collaborate in joint efforts to fulfill the unmet needs of patients with sight-threatening disease.

SERVING THE PUGET SOUND AND GREATER WWAMI REGION (Washington, Wyoming, Alaska, Montana, and Idaho), we provide patient care, education, and research opportunities.
Research

Understanding disorders that affect vision and finding the treatments for tomorrow

We have a commitment to vision research with the goal of improving diagnosis, treatment, and ultimately prevention of disorders of the eye and visual system.

The Vision Science Center at UW Medicine’s South Lake Union research facility provides collaborative opportunities to develop life-changing therapies and medical breakthroughs.

The new SLU 3.1 research building at South Lake Union was completed in June 2013 and houses over 130,000 square feet of research space. The Department of Ophthalmology occupies more than 22,000 square feet of dedicated lab space.

The Vision Science Center at South Lake Union will serve as an umbrella to bring together scientists from across departments to work on research that will lead to the discovery of next-generation tools for diagnosing, preventing, and treating all manner of eye disease.

Genetic tests and treatments for vision disorders, and study of the retinal circuitry for vision

THE NEITZ LABS are developing genetic tests and treatments for common vision disorders, and investigating the retinal circuitry for vision.

Jay and Maureen Neitz collaborate in their studies of the visual system, taking a multidisciplinary approach that uses techniques ranging from molecular genetics to human and animal psychophysics. Major focus areas include developing gene therapy for cone-based vision disorders, investigating the role of genetic variability in the cone photopigments in common eye diseases including AMD, myopia, and glaucoma, understanding the physiological basis for color perception. In addition, the Neitzes are developing genetic tests to identify individuals at risk for developing common eye diseases so that therapeutic interventions can be started before symptoms appear.
Developing photochemical methods to treat blindness

THE VAN GELDER LAB is developing photochemical methods to treat blindness and discovering new microorganisms associated with eye disease.

Degenerative blinding diseases, including age-related macular degeneration, are caused by death of rods and cones. The Van Gelder lab is investigating the therapeutic potential of synthetic small molecule photoswitches for restoring light sensitivity to degenerated retinas.

The laboratory’s research this year was recognized with an Audacious Goals Award from the National Eye Institute, and with funding of a new R24 grant to pursue these studies. Dr. Van Gelder was also elected to the prestigious Alcon Research Institute.

Investigating stem cell application in vision restoration

THE CHAO LAB is investigating potential applications of induced pluripotent stem cells (iPSCs) for treating eye diseases and identifying new drug therapies for eye disease.

Inherited retinal degeneration is a significant cause of blindness. The Chao laboratory is working to create models of retinal degenerative diseases (e.g. AMD, retinitis pigmentosa (RP), Stargardts, and other retinal diseases) that can be used to discover potentially therapeutic drugs. The laboratory takes blood samples from volunteers affected by retinal degenerative diseases to create patient-specific stem cells and grow them into retinal cells to study. Ultimately, the Chao lab group is focused on discovering new drug therapeutics that could potentially benefit those affected by inherited retinal degenerations.
Developing innovative solutions to treat global blindness

THE JOHNSTONE LAB studies regulation of aqueous outflow in glaucomas through studies of tissue biomechanics and related morphology. Studies of tissue biomechanics involve subjecting aqueous outflow system tissues and fluids to loading forces induced by changing pressure relationships, then observing resulting tissue deformation.

The Johnstone lab has also entered into a very productive collaboration with Adjunct Professor Ricky Wang, to study next generation optical coherence tomography (OCT) techniques for the study of glaucoma.

THE SHEN LAB is developing artificial corneas and ocular biosensors for preventing blindness on a global scale.

Corneal opacity is a major cause of blindness. Using donor corneas is often not feasible due to availability and cultural barriers. Artificial corneas developed to date have shown serious limitations. The development of a new biomaterial structure with greatly improved sclera tissue integration and excellent optics shows potential to overcome many of these issues and allow construction and application of an improved prosthesis that can eventually be used to restore sight to a much wider population than is possible now. The Shen lab is also developing microelectronic wi-fi biosensors to allow physicians to monitor the health of patients remotely. The overarching goal is to treat global blindness by leveraging technological advancements in polymer sciences, microelectronics and modern imaging techniques.

Finding a cure for glaucoma, and understanding the causal factors causing blockage of aqueous flow in glaucoma

THE JOHNSTONE LAB studies regulation of aqueous outflow in glaucomas through studies of tissue biomechanics and related morphology. Studies of tissue biomechanics involve subjecting aqueous outflow system tissues and fluids to loading forces induced by changing pressure relationships, then observing resulting tissue deformation.

The Johnstone lab has also entered into a very productive collaboration with Adjunct Professor Ricky Wang, to study next generation optical coherence tomography (OCT) techniques for the study of glaucoma.
The UW Ocular Pathology Laboratory is a collaborative endeavor between the University of Washington Department of Pathology and the University of Washington Department of Ophthalmology whose goal is to provide regional and national leadership in eye pathology-related research and education.

The UW Ocular Pathology Laboratory is CLIA (Clinical Lab Information Act of 1988) certified and is equipped with state of the art grossing and photo documentation facilities, tissue processors, histochemical and immunohistochemical staining technology, and diagnostic light microscopy and bolstered by leveraging the extensive resources of the University of Washington Pathology and Laboratory Medicine Departments which include ultra-structural (electron microscopic) analysis, confocal and epifluorescence microscopy, cytopathology services for ocular fine needle aspirates, flow cytometry and hematopathology services, a wide array of molecular diagnostics, and proteomics.

Pathology and ophthalmology residents and fellows from UW and other training programs participate in preparation and diagnosis of tissue specimens as an essential part of their training.
The Core Grants for Vision Research

The Vision Core Lab at UW Medicine South Lake Union provides shared instrumentation, expertise, and services to NEI funded vision scientists.

**THE CORE GRANT FOR VISION RESEARCH** provides groups of investigators who have achieved independent National Eye Institute (NEI) funding with additional, shared support to enhance their own and their institution’s capability for conducting vision research. Secondary objectives of this program include facilitating collaborative studies and attracting other scientists to research on the visual system.

The **Vision Core Grant** is comprised of three modules, each of which offers shared instrumentation, and module scientists to help investigators. **The Cellular Module** includes a JEOL 1230 TEM, Olympus FV1000 Confocal microscope, a Nikon widefield microscope, and a serial block face scanning electron microscope (Gatan 3View and Sigma VP SEM). **The Systems Module** includes a shared electrophysiology rig, ERG instrumentation, a Micron II fundus Imaging system for mice, and a RetCamII imaging system for animal research. **The Molecular Module** includes a custom antibody making service, help with immunohistochemistry, intraocular injection equipment, and access to several specialty centrifuges.

**VISION SCIENCE RESEARCH FACULTY & ASSOCIATES**

Susan E Brockerhoff, PhD,
Adjunct Professor (Biochemistry)

John I. Clark, PhD,
Adjunct Professor (Biological Structure)

Jennifer Chao, MD, PhD,
Assistant Professor (Ophthalmology)

Ione Fine, PhD,
Associate Professor (Psychology)

Anita Hendrickson, PhD,
Professor Emerita (Biological Structure)

Jim Hurley, PhD,
Adjunct Professor (Biochemistry)

Dirk Keene, MD, PhD,
Assistant Professor (Pathology)

Murray Johnstone, MD,
Clinical Professor (Ophthalmology)

John P. Kelly, PhD,
Affiliate Assistant Professor,
Seattle Children’s Hospital

Ann Milam, PhD,
Professor Emerita (Ophthalmology)

Mike Mustari, PhD,
Research Professor of Ophthalmology

Jay F. Neitz, PhD,
Bishop Professor (Ophthalmology)

Maureen E. Neitz, PhD,
Ray Hill Professor (Ophthalmology)

Robertta Pagon, MD,
Adjunct Professor (Clinical Genetics, Pediatrics)

Thomas A. Reh, PhD,
Adjunct Professor (Biological Structure)

Frederick M. Rieke, PhD,
Adjunct Professor (Physiology and Biophysics)

John C. Saari, PhD,
Professor Emerita (Ophthalmology)

Tueng T. Shen, MD, PhD,
Professor Emerita (Ophthalmology)

Russell Van Gelder, MD, PhD,
Boyd K. Bucey Professor and Chair (Ophthalmology)

Ruikang “Ricky” Wang, PhD,
Adjunct Professor (Bioengineering)

Jing Zhang, PhD,
Adjunct Professor (Neuropathology)
Select Grants and Trials

Clinical trials and grants are the tools of translation between research and patient care

**Diabetic Retinopathy Clinical Research (DRCR)**
Sponsor: Jaeb Center for Health Research, Inc. (JCHR)
Period: 2002-2013
To conduct clinical trials and epidemiological studies for diabetic and standardize data collection methods, testing procedures, and treatment techniques for use in the anticipated multiple protocols to be conducted.

**A Prospective Case-Crossover Study to Evaluate the Possible Association Between the Use of PDE5 Inhibitors and the Risk of Acute Nonarteritic Anterior Ischemic Optic Neuropathy**
Sponsor: Eli Lilly and Company
Period: 2011-2014
Study H6D-MC-LVHQ is an observational, non-interventional, multi-center, prospective, case-crossover study to evaluate the possible association between the use of phosphodiesterase type 5 (PDE5) inhibitors and the risk of acute nonarteritic anterior ischemic optic neuropathy (NAION) in males. Subjects with newly diagnosed NAION will be asked via a structured questionnaire about their use of PDE5 inhibitors and other risk factors prior to the onset of their vision loss. In this case-crossover study, each subject (case) serves as its own control.

**Personalized Medicine for Macular Degeneration: High Throughput Screening for Small Molecule Therapeutics**
Sponsor: Bill and Melinda Gates Foundation
Period: 2012-2014
The goal of this study is to create models of retinal degenerative diseases (e.g. AMD, RP, Stargardts, and other retinal diseases) that can be used to discover potentially therapeutic drugs. In order to do this, we take blood samples from people with and without retinal degenerative diseases to create stem cells and grow them into retinal cells to study in the laboratory.

**Detecting Susceptibility and Modulating Refractive Error in Developing Eyes**
Sponsor: Alcon Laboratories, Inc.
Period: 2011-2013
The goals of this research are to develop a test that incorporates analyses of the OPN1LW and OPN1MW genetic haplotype and the L:M cone ratio to identify the risk of children for becoming myopic and to develop a preventive treatment to control the rate of eye growth in children.
NON-INVASIVE 3D OPTICAL IMAGING OF RETINAL MICROCIRCULATIONS
Sponsor: Research to Prevent Blindness (RPB)
Period: 2012-2014
Hypothesize that OMAG can be developed to non-invasively image, quantify, and characterize retinal blood perfusion and at a resolution of capillary level. The immediate outcome of this research is a new imaging tool capable of simultaneously reporting volumetric microstructures and blood flow at capillary-level resolution. The technology will be useful in both clinic and research that aim to improve our understanding of the physiology and pathology of microcirculations, ultimately facilitating diagnosis, monitoring, and therapeutic interventions of retinal diseases that have vascular involvement.

MICROBIOME ANALYSIS OF THE OCULAR SURFACE IN DRY EYE DISEASE
Sponsor: Alcon Laboratories, Inc.
Period: 2012-2013
Dry eye syndrome (DES) is a common ocular condition typified by irritation and breakdown of the corneal epithelium. Inflammatory mediators have been shown to underlie the pathophysiology of this condition, but the trigger for their expression is unknown. Recent work has suggested that the ocular surface microbiome is far more complex than previously appreciated. In this grant, we propose quantitatively analyzing the ocular surface microbiome of dry eye subjects and unaffected control subjects using representational karyotyping to determine if subjects with dry eye syndrome have consistent changes in their microbiome compared with unaffected individuals.

MYOPIA RISKS AND DISEASE MECHANISMS
Sponsor: National Institutes of Health (NIH)
Period: 2011-2016
To address the stated objective in NEI’s Health Disparities Strategic Plan to “determine the etiology of human myopia and identify the risk factors associated with this and other refractive errors so as to prevent their occurrence or progression.” Specific aim 1 will investigate the role of L:M cone ratio in the etiology of myopia by comparing ratios across ethnic groups particularly at risk for myopia. Aim 2 will evaluate the role of cone ratio, axial length, and L and M cone opsin gene variants in the etiology of myopia. Aim 3 will evaluate the potential of lenses that block specific wavelengths of light and introduce image blur in slowing axial elongation in myopic children.

GENES AND VISUAL PIGMENTS OF RED-GREEN COLOR VISION
Sponsor: National Institutes of Health (NIH)
Period: 2011-2014
This application focuses on a unique sub system within the primate visual system where there are exceptional opportunities to discover the workings of neural circuitry responsible for specific percepts. It is widely accepted that S-cone input to S-cone bipolar cells and in turn to small bistratified ganglion cells—the so called “S-ON/koniocellular pathway”-- is the
important circuit for blue-yellow color vision; however, the fact that the spectral response properties of small bistratified ganglion cells measured physiologically do not match those of the blue-yellow opponent channel measured perceptually is an unresolved problem for the idea that the small bistratified ganglion is the biological substrate blue perception.

**EXPRESSION AND FUNCTION OF CONE PIGMENT GENES**

Sponsor: National Institutes of Health (NIH)  
Period: 2009-2013  
The long-term goal of this research program is to understand the role of amino acid sequence polymorphisms in the long-and middle-wavelength cone opsins in vision disorders. All known amino acid substitutions observed in human rhodopsin or in the human S cone opsin are associated with photoreceptor abnormalities and disease. The question we will address in this proposal is - what is the role of amino acid substitutions in the L and M cone opsins in vision disorders?

**STRUCTURE-FUNCTION OF C-GROUP MOTONEURONS**

Sponsor: NIH/NEI  
Period: 2010-2013  
Treatment and cure of developmental or acquired strabismus requires advancing our knowledge about how the brain controls eye alignment, gaze-holding and eye movements. Full visual function depends on the coordinated action of vision and eye movements to direct our line of sight so that an object of interest will be imaged on the fovea of each eye. To achieve maximum visual acuity and depth perception, we must be able to hold our eyes steady on a stationary or moving target. If normal innervation fails to develop or is compromised by injury, infantile or acquired misalignment of the eyes (strabismus) could result. Studies will compare and contrast the functional organization and relative roles of different classes of motoneurons (C- and A-groups) that primarily drive either orbital or global muscle fibers. We will test the hypothesis that C-group motoneurons play a major role in maintaining eye alignment, gaze-holding and vergence.

**DIVERSITY AND DYNAMIC STABILITY OF THE OCULAR SURFACE MICROBIOME**

Sponsor: National Institutes of Health  
Period: 2012-2017  
Infections of the ocular surface (OS), including microbial keratitis and conjunctivitis, are major causes of visual disability and blindness in the US and world-wide. Traditional microbial cultures of OS infections fail to identify a pathogen in a high proportion of cases. Plausible explanations include limited sensitivity of culture, and/or the presence of novel (and potentially unculturable) microbes at the OS predisposing to eye diseases. Our research will generate an unprecedented reference data set for understanding of the physiological role and dynamics of the normal OS microbiome, and the effect of external stresses on its community structure. The identification of novel potential ocular pathogens will facilitate development of new molecular diagnostics for their detection, and may alter therapy for these conditions.
JAY NEITZ, PROFESSOR OF OPHTHALMOLOGY, is dedicated to making discoveries that will change the lives of people afflicted by common eye problems. Last December, his search for answers took him away from cool and rainy Seattle to a region with some of the highest temperatures in South America. This area, on the border between Argentina and Paraguay, known as “Green Hell,” is a hot expanse of dense forest and chaparral with a reputation for being one of the most impenetrable and mysterious places on Earth. It is home to massive anteaters, parrots, capybaras, jaguars, giant armadillos and peccaries. There are strange cardon cactus and palm trees and forests of holy wood and the amazing spiny silk floss trees. It is also home to indigenous people, the Toba who live without modern conveniences, have no access to electricity or plumbing. They spend all their waking hours outside and—strikingly—they have very few vision problems.

Dr. Neitz is interested in what causes children to become nearsighted. Nearsightedness is the most common chronic disorder in humans. Most people who are nearsighted start wearing eyeglasses in grade school and their vision gradually gets worse through their school years. Scientists have observed that the greatest risk factor for becoming nearsighted is to have two parents who are nearsighted and the second greatest risk factor is the amount of time children spend indoors. The fact that having parents who need glasses is a risk factor that suggests a genetic component; indoor time being a risk factor indicates an environmental component. The question is how to differentiate between the two contributing factors. Dr. Neitz thought that the indigenous people of the Gran Chaco region in Argentina who have lived as nomads and hunters along the Pilcomayo River for thousands of years might provide clues and he traveled there to find out.

The highest frequency of nearsightedness in the world is in Asia. The prevalence of nearsightedness, or myopia, among Asian schoolchildren (in Singapore, China, Taiwan, Hong Kong, Japan, and Korea) is strikingly, up to 90% according to recent statistics. The prevalence of myopia in the United States is 42%. People with severe nearsightedness (High myopia) are greatly disabled without corrective eyewear and they make up about 2% of the general population in the US. High myopia is a major cause of legal blindness because of its association with an increased risk for premature cataracts, glaucoma, retinal detachment, and macular degeneration.
The indigenous people of the Americas from Canada to the southern tip of South America are believed to have descended from migrants that crossed over through Beringia, a land bridge between Asia and America that existed during the ice ages, thousands of years ago. Thus, if Asians have a higher genetic susceptibility to nearsightedness it is possible that the same predisposition could be present in the distantly related Toba people of the Argentinean Gran Chaco. The Toba people and the inhabitants of Tokyo or Singapore may share an inherited susceptibility to nearsightedness; however, there are no two environments on earth more different in terms of the influences of modern technology and modern culture than Tokyo or Singapore and the mysterious wilds of the hot wet region south of the Pilcomayo River.

Dr. Neitz and his research group hoped to learn from the Toba people information that would help disentangle how the interplay between genes and the environment cause nearsightedness. He went to test their vision to see how the incidence of nearsightedness among people who spend all their time outdoors compares to people who live in congested modern cities. In return, he hoped to help the Toba people too by determining prescriptions and providing glasses to everyone who needed them. In return, he hoped to help the Toba people too by determining prescriptions and providing glasses to everyone who needed them.

In return, he hoped to help the Toba people too by determining prescriptions and providing glasses to everyone who needed them. As it turned out, only one person in all the villages Dr. Neitz visited had a pair of glasses. It was also the oldest person he met and the person with the most status. The glasses were drug-store style “readers” that he used for close work. To his amazement Dr. Neitz found that almost all the Toba people have perfect vision, only a very small number could benefit from glasses and there was no high myopia. Dr. Neitz’s hypothesis is that the difference in prevalence of myopia between the Toba people and people in the US and in Asia is the result of dissimilarity in environment. However, it is not anything in the air or food or drinking water. It appears to be the visual environment to which they are exposed. Living outdoors only exposed to the blue sky and green forest without electric light or television seems to prevent nearsightedness.

The good news is that instead of correcting nearsightedness with eyeglasses, contacts and refractive surgery, what we learn from the Toba people is that it may actually be preventable. This does not mean that we have to raise our children without electric lights, computers, smartphones, tablet or television. We just need to create a visual environment that mimics the outdoor world of the Gran Chaco. Dr. Neitz believes this can be done with special glasses and by subtly reengineering the electronic screens to which our children are exposed.
GROWING UP IN A POORER NEIGHBORHOOD WITH WORKING-CLASS PARENTS, I never thought law school was an option for me. Kids like us weren't really told about what options we had, what opportunities there might be for us. In high school, nobody even told me about the SATs until I asked about them.

It was only through my own curiosity, commitment and working a series of hard jobs that I was able to go to college and find the opportunities I did. That’s why today, so much of my life is devoted to helping others, not solely through my work as a judge but also through Year Up, a nonprofit organization dedicated to helping urban young adults discover opportunities and succeed in life. I even travel to other countries to educate people on the rule of law and how to lift themselves up.

People imagine a judge’s day as sitting behind the bench in their robe, issuing rulings and commands. In reality, 90 percent of my job is reading briefs, performing research and writing opinions that often stretch to 30 pages. It suits me perfectly because I’m a voracious reader. In our 30 years together, my husband and I have never owned a television, preferring instead to read anything and everything.

My eyes are my life. I’d sooner give up my hearing than my vision. And that thought actually went through my head when I started having eye trouble. Left eye, specifically. It was red, irritated and very painful. My previous doctors didn’t know the cause. So they focused on treating the most outward symptom — the pain.
They prescribed large doses of steroid medication to try to manage the pain, but as the pain grew, the dosage grew. I’ve since learned that an acceptably high dosage of prednisone is 10 mg. And only for short periods. At the peak, I was taking 80 mg, and the pain was feeling less and less under control.

To say I was miserable is an understatement. I was missing work. I was tired and lethargic. I started experiencing depression. All my life, I’ve been a busy, active person. This pain was changing me.

Oddly enough, it took a trip to the San Francisco Bay area to bring me to UW Medicine. Our friend there knew a physician in San Francisco who knew a physician at UW Medicine who said that Dr. Van Gelder (UW Physician, Harborview Medical Center) was the one to see. We were warned, however, that Dr. Van Gelder is very busy and usually booked up. I kept my expectations low. But the very next day, from out of the blue, I received an email from Dr. Van Gelder himself to set up my appointment. That was my first indication that Dr. Van Gelder was different. The second came in our very first consultation.

It was instantly clear that this was a man devoted to his work. He truly is quite busy, yet he made time for me because he saw that I needed help, and he thought that he could make a difference for me. He told me that, first, we needed to reduce and ideally eliminate the steroids, as prolonged use can do as much damage to a person as good. And to do that, we needed to find another solution for my eye pain, which was caused by inflammation.

I remember when he sat forward at his desk and put it to me in the clearest terms possible. “There is a chance that you could lose your eyesight,” he told me. “My mission in life is to make sure that that doesn’t happen.” My husband and I left that first meeting confident that we were finally in the right place.

Dr. Van Gelder told me that I suffered from an autoimmune disorder attacking my left eye and that he knew of an experimental drug being used for cancer patients that could help me. So he immediately started building a treatment plan to begin a gradual, positive change for me. And over the next few years, he continually adjusted my regimen and tracked my progress, and before long my pain became less and less. The previously high doses of prednisone had, in fact, done damage. They caused a cataract, which Dr. Van Gelder’s colleague Dr. Shen (UW Physician, Harborview Medical Center) corrected. And it caused my eyelid to droop. That was fixed too.

I know it sounds corny to say, but is there anybody on that team who isn’t fantastic?
FACILITIES
• The Eye Institute opened in the Ninth and Jefferson Building at Harborview Medical Center in July 2009.
• This Eye Institute has over 25,000 square feet of clinic space. It is the flagship clinic of the UW Medicine Department of Ophthalmology.
• Other sites associated with the department are located at Harborview Medical Center, University of Washington Medical Center, Seattle Children’s Hospital and Medical Center, and the Veterans Administration Puget Sound Medical Center.

FACULTY
• The Department of Ophthalmology currently has 38 full-time faculty members, including 3 Ph.D. scientists and 6 faculty who hold both MD and PhD degrees.

EDUCATION
• The department currently educates 13 ophthalmologists every year through its ACGME accredited training program.
• The residency program was expanded to include 5 residents per class in a 3 year training program (9,000 hours of training), as well as fellows, specializing in retina, uveitis, oculoplastics, and pediatric ophthalmology.

PATIENT CARE
• Physicians in the Eye Institute see about 23,000 patients per year and perform more than 1,800 surgical procedures.
• The Eye Institute covers the full range of ophthalmic specialties – from retinal diseases, to glaucoma, to neuro-ophthalmological diseases, to pediatric care.
• The UW Medicine Eye Institute is the only full-service ophthalmology trauma service in the states of Washington, Wyoming, Alaska, Montana and Idaho.
• About 20% of patient visits are provided free or at reduced cost. UW Medicine is the “safety net” eye care service for King County.

Fast Facts
Our Providers

**Eissa Hanna, MD**
Dr. Hanna is an Assistant Professor of Ophthalmology at the University of Washington. He also serves as the Director of Consult Services for Harborview Medical Center’s 4West Clinic.

**Education History**
- University of California, Davis Medical School
- Penn State University Residency
- Harvard University Fellowship, Ophthalmic Pathology

**Patient Care philosophy**
He believes that the patient-physician relationship is built on trust and maintained through patient education. Ultimately, it is both the patient and the physician who work together for the desired outcome.

**Scope of Care**
As a comprehensive ophthalmologist, Dr. Hanna treats a wide variety of conditions that affect the eye and eyelids.

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**Deborah L. Lam, MD**
Dr. Lam is a comprehensive ophthalmologist and UW assistant professor. She is an attending physician at the Veterans Affairs Puget Sound Healthcare system.

**Education**
- BA – Northwestern University, Evanston, IL
- MD - Northwestern University, Evanston, IL
- Residency - University of Washington Hospitals, Seattle, WA
- Fellowship Uveitis – University of Washington Hospitals, Seattle, WA

**Patient Care Philosophy**
She believes the foundation of the patient-physician relationship is communication. Her care is focused on the needs of her patients and their families.

**Scope Of Care**
Diagnosis and treatment of a comprehensive range of eye conditions, including such entities as cataract, glaucoma, diabetic retinopathy, macular degeneration, ocular surface diseases and eye trauma.

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**Jennifer J. Lee, MD**
Dr. Lee is a UW clinical instructor of ophthalmology and an attending physician of ophthalmic surgery at 4 West Clinic at Harborview Medical Center.

**Education**
- BS - Psychological Services, Northwestern University, Evanston, IL
- MD - Northwestern University, Evanston, IL
- Residency - University of Iowa, Iowa City, IA
- International Fellow - Kim Eye Hospital, Seoul, Korea

**Patient Care Philosophy**
To treat each patient as if he or she were a best friend asking for help.

**Scope Of Care**
Comprehensive medical care of the eye and surgical care of the anterior segment.

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**Parisa Taravati, MD**
Dr. Taravati is an assistant professor and an attending physician at the UW Medical Center. She is a clinician educator. Her primary clinical interest is comprehensive ophthalmology.

**Education**
- BS - University of Iowa
- MD – University of Iowa Hospitals & Clinics
- Residency – University of Iowa Hospitals & Clinics

**Patient Care Philosophy**
She believes in educating her patients on their eye conditions and allowing them to actively participate in their medical care.

**Scope of Care**
Dr. Taravati is a comprehensive ophthalmologist who treats patients through both medical and surgical procedures, as well as in-office exams.
Jennifer T. Yu, MD, PhD
Dr. Yu is a UW clinical assistant professor and an attending physician at 4 West Clinic at Harborview Medical Center. Her clinical interest is in comprehensive eye care including dry eyes, blepharitis, cataracts and cataract surgery, glaucoma, diabetes in the eye and macular degeneration.

Education
BS - University of Michigan, Ann Arbor, MI
PhD - Washington University School of Medicine
MD - Washington University School of Medicine

Residency - Washington University School of Medicine

Patient Care Philosophy
She believes good patient care starts with listening to the patient and addressing his or her concerns. She also believes that health care is a partnership between the physician and the patient. This involves patient education and helping the patient make informed decisions.

Scope Of Care
She is a comprehensive ophthalmologist who diagnoses and treats a wide range of eye conditions such as dry eye, cataracts and glaucoma.

Bryan S. Lee, MD, JD
Dr. Lee is a UW assistant professor of ophthalmology who specializes in refractive surgery, cataract surgeries and medical and surgical management of corneal disorders. He specializes in cornea, cataract, and refractive surgery and has research interests in health policy.

Education History
BS - Harvard College
JD - Harvard Law School
MD - Washington University in St. Louis
Residency - Wilmer Eye Institute, Johns Hopkins Hospital
Fellowship Anterior Segment - Minnesota Eye Consultants

Patient Care Philosophy
Dr. Lee believes in patient education and shared understanding of patient goals. He focuses on being empathetic and clear in his explanations and recommendations.

Scope of Care
Dr. Lee specializes in cataract, cornea, and refractive surgery.

Tueng T. Shen, MD
Dr. Shen is a UW associate professor of ophthalmology and an adjunct in bioengineering. She specializes in refractive surgery, cataract surgeries and medical and surgical management of corneal disorders. She also established this region’s artificial cornea transplant program to treat severe corneal blindness.

Education
BA - Wellesley College and Oxford University
PhD - Massachusetts Institute of Technology
MD - Harvard Medical School
Residency – Massachusetts Eye & Ear Infirmary, Harvard
Fellowship – Cornea/Refractive - Moran Eye Center, University of Utah

Patient Care Philosophy
Dr. Shen is committed to delivering the best eye care possible by providing the most advanced treatment options and by developing better technologies to restore vision for patients with challenging corneal conditions. She strongly believes that patients deserve a physician who listens, keeps them well-informed and is a partner in accomplishing the best treatment plan customized to each patient’s needs.

Scope Of Care
Refractive surgeries (laser and non-laser surgeries) to minimize refractive errors and reduce dependence on glasses or contact lenses, cataract surgeries, corneal surgeries (PKP, DSEK, artificial cornea surgeries, conjunctival surgeries, stem cell transplant surgeries) and medical management of all areas of corneal diseases.

Cornea and External Disease
Cornea and External Disease, cont.

**Michael C. Wu, MD**
Dr. Wu is an associate professor of ophthalmology and an attending physician at the VA Puget Sound Healthcare System. As a cornea specialist, Dr. Wu has advanced training in the surgical and medical management of corneal diseases, as well as in refractive surgery.

Education:
AB - Molecular Biology - Princeton University
MD - University of Texas Southwestern Medical School

**Glaucoma**

**Philip P. Chen, MD**
Dr. Chen is the Grace E. Hill Chair in Vision Research, professor and chief of ophthalmology at UW Medical Center and Harborview Medical Center.
Education: BS - Stanford University, MD - Yale University
Residency - Doheny Eye Institute
Fellowship - Bascom Palmer Eye Institute

Patient Care Philosophy
Dr. Chen's professional passion is to prevent blindness caused by glaucoma.

Scope Of Care
All types of glaucoma and cataracts, particularly complex glaucoma and cataract surgery.

**Raghu Mudumbai, MD**
Dr. Mudumbai is an UW associate professor of ophthalmology and an attending physician at the UW Medicine Eye Institute at Harborview Medical Center. Dr. Mudumbai specializes in glaucoma, neuro-ophthalmology, and treats patients with multiple sclerosis.

Education
BA - City University of New York
MD - State University of New York
Residency – State University of New York Health Science Center
Fellowship in Glaucoma – New York Eye and Ear Infirmary
Fellowship in Neuro-Ophthalmology - University of Minnesota

**Mark Anthony Slabaugh, MD**
Dr. Slabaugh is a UW assistant professor of ophthalmology and attending physician at the UW Medicine Eye Institute at Harborview. He is a board-certified ophthalmologist with subspecialty training in the medical and surgical management of glaucoma. He has a particular interest in complicated glaucoma and cataract surgery, as well as management of uveitic glaucoma.

Education
BS - Hope College
MD - University of Washington
Residency – University of Washington
Fellowship in Glaucoma - University of British Columbia

Patient Care Philosophy
His goal is to prevent blindness caused by glaucoma.

Scope Of Care
Glaucoma, cataracts, cataract surgery.
Medical and Surgical Retina

**Grace Chang, MD, PhD**
Dr. Chang is a UW assistant professor in the Department of Ophthalmology. She specializes in diseases of the retina and vitreous.

**Education**
- Stanford University, BS (Chemistry)
- Stanford University, MS (Electrical Engineering)
- California Institute of Technology, PhD (Computation and Neural Systems)

**Patient Care Philosophy**
To provide the highest quality of care in a compassionate environment

**Scope of Care**
Medical and surgical management of vitreoretinal diseases

**Jennifer Chao, MD, PhD**
Dr. Chao is an assistant professor and attending physician at the UW Eye Institute at Harborview Medical Center. She is a clinician scientist who specializes in diseases of the retina, vitreous, and macula.

**Education**
- BS - Stanford University
- PhD - Yale University
- Residency - USC/Doheny Eye Institute
- Fellowship – Vitreoretinal Surgery - USC/Doheny Eye Institute

**Patient Care Philosophy**
Dr. Chao is dedicated to bringing the highest quality of care to her patients by offering the most up-to-date diagnostic and treatment options to her patients. She enjoys partnering with her patients in their care, listening to them, and keeping them informed of the latest in current research regarding challenging retinal diseases.

**Scope of Care**
Dr. Chao offers both medical and surgical treatments for vitreoretinal diseases. She has a particular interest in patients with hereditary retinal degenerations.

**James L. Kinyoun, MD**
Dr. Kinyoun is a UW professor of ophthalmology and attending physician at the UW Eye Institute at Harborview Medical Center, who specializes in medical and surgical diseases of the retina and vitreous. His clinical research interests include diabetic retinopathy and retina complications of prior radiotherapy.

**Education**
- BS - University of Nebraska, Lincoln (With Distinction)
- MD - University of Nebraska College of Medicine, Omaha
- Residency – Medical College of Wisconsin, Milwaukee
- Fellowship – Disease and Surgery of Retina and Vitreous, University of Minnesota, Minneapolis

**Patient Care Philosophy**
Each patient is unique and deserves individual attention regarding final diagnosis and selection of treatment. What worked very well for the last patient with the same eye problem may not be the best treatment choice for every patient. Educating each patient about the diagnosis and treatment options available allows the patient to become a part of the decision-making process.

**Scope Of Care**
Medical and surgical care of retina and vitreous diseases including retinal detachment, diabetic retinopathy, vitreous hemorrhage, age-related macular degeneration, and other macular abnormalities with intravitreal injections, vitrectomy, scleral buckle, laser photocoagulation, and lensectomy. Preoperative evaluations include interpretation of fluorescein angiography, B-scan ultrasonography and optical coherence tomography.

**Richard S. Munsen, MD**
Dr. Munsen is a UW clinical associate professor and an attending physician at the UW Eye Institute at Harborview Medical Center. His sub-speciality is diseases and surgery of the retina and vitreous.

**Education**
- BA - St. Olaf College, MD - University of Iowa
- General Medical Officer (general practice medicine), US Air Force
- Residency- University of Michigan
- Fellowship - Diseases and Surgery of the Retina and Vitreous University of Iowa
Medical and Surgical Retina, cont.

Patient Care Philosophy
Dr. Munsen treats all patients as if they were family members. The patient always comes first.

Scope Of Care
His expertise includes consultation for all types of retinal, vitreous and macular problems, as well as any laser treatment, injections or surgery for these problems.

G. Atma Vemulakonda, MD
Dr. Vemulakonda is a UW assistant professor of ophthalmology and an attending physician at the UW Eye Institute at Harborview Medical Center. His numerous clinical interests involve diseases and disorders of the retina and vitreous of adults, such as vitreoretinal surgery, age-related macular degeneration, diabetic retinopathy, retinal vascular disease and occlusions, vitreoretinal infectious disease and trauma involving the retina and vitreous.

Education
BA - Washington University
MD - Washington University School of Medicine
Residency - Washington University School of Medicine
Fellowship Vitreoretinal Disease and Surgery - Oregon Health & Science University

Patient Care Philosophy
Enabling the patient to become actively involved with his or her medical team ensures treatment of the patient and not just the disease.

Scope Of Care
Diseases of the retina and vitreous, vitreoretinal surgery.

Neuro Ophthalmology

Courtney Francis, MD
Dr. Francis is an assistant professor of ophthalmology and an attending physician at the UW Eye Institute at Harborview Medical Center. Dr. Francis is a clinician educator with primary clinical interest in neuro-ophthalmology. She also cares for adult patients with strabismus. Dr. Francis is Director of Medical Student Education.

Education
BS - Brown University
MD - University of Rochester
Residency - University of Alabama at Birmingham School of Medicine
Fellowship in Neuro-Ophthalmology - University of Southern California Keck School of Medicine
Patient Care Philosophy
Dr. Francis enjoys educating her patients on their diagnoses and making them active participants in their medical care.

Scope of Care
Dr. Francis specializes in neuro-ophthalmology. She treats patients with optic neuropathies, cranial nerve palsies, idiopathic intracranial hypertension, tumors involving the visual pathways, in addition to patients with systemic diseases such as multiple sclerosis, myasthenia gravis and Grave’s disease. She offers both medical and surgical treatments for adult strabismus.

James C. Orcutt, MD, PhD
Dr. Orcutt is Chief of Surgery for VISN 20, at the Veterans Health Administration, Department of Veterans Affairs, and a UW professor of ophthalmology and adjunct professor of otolaryngology, head and neck surgery. His interests include neuro-ophthalmology, orbital disease and oculoplastic surgery.

Education
B Ph - University of Colorado School of Pharmacy
PhD - University of Colorado, School of Medicine, Department Pharmacology
MD - University of Colorado, School of Medicine
Residency – University of Washington
Fellowship – Orbit - Moorfields Eye Hospital – London, UK
Fellowship – Neuro-Ophthalmology - National Hospital Nervous Diseases – London, UK
Fellowship – Pediatric Neuro-Ophthalmology – Hospital for Sick Children – London, UK

Patient Care Philosophy
He is a strong proponent of team-based care, bringing together the appropriate individuals to
Neuro Ophthalmology, cont.

address a patient’s problems. He is patient-centered in his approach to clinical care.

Scope Of Care
Dr. Orcutt is involved in the scope of services provided to veteran patients and has oversight responsibilities for surgical care delivered to veterans in Alaska, Oregon, Washington and Idaho. In addition, he served as the Veterans Affairs National Program Director for Ophthalmology and as such had oversight responsibilities across the United States.

Oculofacial Plastic and Orbital Surgery

A.J. Amadi, MD
Dr. Amadi is a UW clinical assistant professor of ophthalmology and attending physician at 4 West Clinic at Harborview Medical Center.

Education
BS - Rensselaer Polytechnic Institute

Residency - New York University Medical Center
Fellowship in Eye Pathology/Ocular Oncology, Harvard Medical School, Massachusetts Eye and Ear Infirmary
Fellowship in Oculofacial Surgery, Department of Ophthalmology, University of Washington

Patient Care Philosophy
Patients always come first.

Scope of Care
Orbital and ophthalmic/facial plastic surgery.

Holly Chang, MD
Dr. Chang is a UW assistant professor of ophthalmology and attending physician at the UW Eye Institute at Harborview Medical Center. She cares for patients with plastic surgery disorders affecting the eyelids, nasolacrimal system, orbit, face, and neck.

Education
BA - Duke University
MD - Johns Hopkins University
Residency - Washington University
Fellowship in Ophthalmic Pathology - Washington University
Fellowship in Oculoplastic Surgery - University of California

Patient Care Philosophy
As an ophthalmic pathologist as well as orbital and oculofacial plastic surgeon, Dr. Chang understands the microscopic basis of diseases, but approaches each patient as individuals with unique reconstructive and aesthetic goals.

Scope of Care
Dr. Chang provides medical and surgical care for patients with all forms of ptosis (droopy eyelids and eyebrows), nasolacrimal duct disease, orbital tumors/inflammation, Graves disease, eye socket abnormalities, facial skin cancers, and facial trauma. Cosmetic procedures include botulinum toxin injections, periocular and facial synthetic and fat fillers, chemical and laser skin resurfacing, eyebrow and eyelid lifts, and face/neck rejuvenation.
Oncology and Ocular Tumors

Robert E. Kalina, MD, Professor Emeritus
Dr. Kalina is a UW professor emeritus and past chair of the UW Department of Ophthalmology. He is past president of UW Physicians, director emeritus of the American Board of Ophthalmology and a recipient of the Life Achievement Honor Award of the American Academy of Ophthalmology.

Education
BA – University of Minnesota
BS – University of Minnesota
MD – University of Minnesota Medical School
Residency in Ophthalmology – University of Oregon Medical School
Special Fellow – National Institute of Neurological Diseases and Blindness – Massachusetts Eye and Ear Infirmary

Patient Care Philosophy
Dr. Kalina thoroughly enjoys meeting patients and trying to help them solve their health problems.

Scope Of Care
Intraocular tumors and retinal diseases, particularly retinal degenerations; inherited retinal diseases; and retinopathy of prematurity.

Optometric Services

Claire Angel, OD
Dr. Angel received her optometry degree from the Southern College of Optometry in Memphis. After completing postgraduate training in ocular disease at the Omni Eye Services of Memphis, she went on to become the clinical director of Omni Eye Services and the Optometric Director of Refractive Services at TLC Laser Eye Centers. Dr. Angel has been in private practice for 15 years, focusing on corneal disease.

Education
BS - Southern College of Optometry
OD - Southern College of Optometry
Post-graduate - Omni Eye Services

Patient Care Philosophy
Compassion and individual attention are critical in providing patients with highest standards of comprehensive optometric eye care. Dr. Angel believes in giving patients a thorough explanation and providing them with the tools to be proactive in their care. She feels fortunate to work with an outstanding team at the UW that synchronizes care to provide patients with a seamless experience.

Scope Of Care: Comprehensive optometric eye care which includes annual eye examinations, baseline dilated fundus exam for patients diagnosed with systemic diseases and evaluation, treatment and appropriate referrals for red eye.

Tiffany Hollenbeck, O.D.
Education; BS, Biology and Natural Science, Gustavus Adolphus College, 1998, OD - Pacific University College of Optometry, 2002

Patient Care Philosophy
Dr. Hollenbeck is compassionate with her patients and believes in providing them with the knowledge needed to be proactive with their eye health.

Scope of Care
Dr. Hollenbeck provides comprehensive optometric care, specializing in eye exams, contact lens fittings, treating dry eye and allergies as well as screening for cataracts, glaucoma and macular degeneration. She also has experience working with ophthalmologists to assist in caring for patients for refractive surgery, cataract surgery and corneal transplants.
Optometric Services, cont.

Nancy Ross, OD
Dr. Ross is a UW teaching associate and primary optometrist for the refractive Surgery Center at UW Medical Center.
Education
BA - Exercise and Sport Science, Minor in Chemistry - Western Washington University
OD - Pacific University College of Optometry
Post-graduate - Westside VAMC, Chicago, IL
Post-graduate - Hines VAMC Blind Rehabilitation Center, Hines, IL
Patient Care Philosophy
Compassion and individual attention are critical in providing patients with highest standards of comprehensive eye care. Dr. Ross believes in giving patients a thorough explanation and providing them with the tools to be proactive in their care. She feels fortunate to work with an outstanding team at the UW that synchronizes care to provide patients with a seamless experience.
Scope Of Care
Comprehensive primary eye care which includes annual eye examinations, baseline dilated fundus exam for patients diagnosed with systemic diseases and evaluation, treatment or appropriate referrals for red eye emergencies. She also provides refractive surgery consultations, comprehensive pre-operative eye exams for LASEK, PRK and cataract patients, post-operative follow-up and general eye exams for past refractive surgery patients.

James Toop, OD
Dr. Toop is a primary care optometrist and UW teaching associate with an emphasis on contact lens fitting. He sees patients of all ages.
Education
BSc, University of Edinburgh, Scotland
PhD - University of Edinburgh, Scotland
OD - New England College of Optometry
Fellowship in Muscle Biochemistry - University of California
Patient Care Philosophy
All patients receive the full benefit of care without discrimination. Patients will be treated courteously and will be seen in a timely fashion if at all possible.
Scope Of Care
Complete eye exams, with referral to appropriate specialists as needed; and fitting of soft and hard contact lenses for cosmetic or therapeutic reasons.

Francine M. Baran, MD
Dr. Baran is a UW clinical assistant professor of ophthalmology and a physician at Seattle Children’s.
Patient Care Philosophy
Her daily commitment is to providing children a comfortable and friendly environment so they feel at ease during eye exams. She understands that an unfamiliar environment can be intimidating; so she tries to make the whole experience as much fun as possible, which makes each day an exciting opportunity to help young people.

Pediatric and Strabismus

Education
BA - Washington University
MD - Hahnmann School of Medicine
Residency, State University New York - Downstate, Brooklyn, NY
Fellowship - Children’s National Medical Center
Patient Care Philosophy
Good vision is essential for proper physical and emotional development, as well as educational progress in growing children. She aims to empower her adult patients to understand their medical condition and take an active role in their care. She also believes that listening is the first step in treating a patient’s medical condition.
Scope Of Care
Pediatric Ophthalmology, Strabismus.
Erin P. Herlihy, MD
Dr. Herlihy is an assistant professor of ophthalmology and a physician at Seattle Children's.
Education
BS - University of Notre Dame, Notre Dame
MD - Loyola University Stritch School of Medicine, Residency - University of Washington, Fellowship - Kellogg Eye Center

Patient Care Philosophy
A fun and nonthreatening environment is essential in engaging children and their families to participate in their eye care. Children are not just little adults.

Scope of Care
Pediatric and adult strabismus, amblyopia, nasolacrimal disorders, refractive error in children, pediatric cataracts, pediatric glaucoma and systemic diseases that affect the eyes.

Kristina Tarczy-Hornoch, MD, DPhil
Dr. Tarczy-Hornoch is associate chief of ophthalmology at Seattle Children's Hospital and a UW associate professor. Her clinical and research interests focus on disorders that affect visual development in children.
Education
BA - University of Oxford, Oxford, U.K.
MD - University of California, San Francisco, School of Medicine
MS - Clinical and Biomedical Investigation - University of Southern California
Internal Medicine Internship - University of Washington, School of Medicine
Residency - Doheny Eye Institute, University of Southern California, Keck School of Medicine
Fellowship – Wilmer Ophthalmological Institute, Johns Hopkins Hospital

Patient Care Philosophy
Caring for children means caring for the whole family. Parents will do everything possible to help their children, but can sometimes feel overwhelmed by the decisions they face, especially when there isn't just one right answer. One of the most rewarding experiences for a physician is being able to teach families and empower them to make informed decisions about a child's care.

Scope of Care
Dr. Tarczy-Hornoch specializes in pediatric ophthalmology, providing both medical and surgical care for children with eye or vision problems.

Avery H. Weiss, MD
Dr. Avery H. Weiss is chief of the Division of Ophthalmology at Seattle Children's Hospital, the Roger H. & Angie Karalis Johnson professor in pediatric ophthalmology, and professor of ophthalmology at the University of Washington School of Medicine. His clinical interests include visual disorders, eye movement abnormalities, cataract and glaucoma, retinoblastoma and orbital tumors, ocular malformations and ophthalmological manifestations of systemic diseases.
Education
BS - University of Florida
MD - University of Miami
Residency - Washington University
Fellowship - Washington University
Fellowship – Pediatric Ophthalmology - Children's Hospital National Medical Center
Refractive Surgery

See provider profile information under Cornea and External Disease

Bryan Lee, MD, JS
Tueng T. Shen, MD, PhD
Michael Wu, MD

Uveitis and Ocular Inflammation

Thellea Leveque, MD, MPH
Dr. Leveque is a board certified comprehensive ophthalmologist and an attending physician at the UW Eye Institute at Harborview Medical Center. Dr. Leveque is a UW clinical assistant professor. She sees patients in comprehensive ophthalmology and uveitis.

Education
BA - Amherst College
MD - Duke University School of Medicine
M.P.H. - University of North Carolina
Residency - University of Michigan
Fellowship - Uveitis, University of Washington

Patient Care Philosophy
Patient education and participation in care is vital to eye health. "I will do everything I can to explain your eye condition in a way that makes sense to you. There is no such thing as a dumb question!"

Scope of Care
All straightforward and complex medical conditions of the eye, including dry eye and related diseases, glaucoma, mild to moderate macular degeneration, ocular health in systemic disease (including diabetes), and trauma.

Russell N. Van Gelder, MD, PhD
Dr. Van Gelder is the UW Boyd K. Bucey Professor and chair of the Department of Ophthalmology and Director of the UW Medicine Eye Institute. Dr. Van Gelder is a clinician-scientist. His primary clinical interest is in ocular inflammatory disease (uveitis and related conditions). He also cares for patients with medical retinal diseases.

Education
BS - Stanford University School of Medicine
MD - Stanford University School of Medicine
PhD - Neuroscience, Stanford University School of Medicine
Residency - Washington University Medical School/Barnes Hospital
Fellow - Uveitis and Medical Retina, Barnes Retina Institute, St. Louis

Patient Care Philosophy
Dr. Van Gelder practices evidence-based medicine supported by over a decade of practice in uveitis. He gives the same thorough, personal attention to each patient. He involves the entire eye care team in patient care, and he examines each patient and discusses his or her care with patience and thoroughness. Dr. Van Gelder involves patients in their care decisions and takes each patient’s individual philosophy and preference into account when deciding on a treatment course.

Scope Of Care
Dr. Van Gelder treats ocular inflammatory and medical retinal disease primarily through medical treatments, as well as in-office procedures.
Education

Preparing the next generation of physicians and vision scientists

The University of Washington has trained more than 150 ophthalmologists since 1966. Our award-winning faculty members, modern teaching facilities, and volume of pathology make the University of Washington an ideal learning environment.

Resident and Fellow Physicians

RESIDENCY PROGRAM
The Ophthalmology Residency is designed to develop clinicians well trained in medical and surgical ophthalmology prepared to excel as community practitioners, or to follow a career track that will lead them to academic medicine or biomedical research. With our outstanding faculty and state of the art facilities, our residents are exposed to a wide variety of eye disease from the greater WWAMI region (Washington, Wyoming, Alaska, Montana, Idaho).
Community Action Board

THE ‘CAB’ IS A GROUP OF MOTIVATED MEMBERS OF OUR COMMUNITY, who serve as our ambassadors in the wider world, and who have generously supported the Department and Eye Institute with their own gifts this past year. These gifts will help spur innovation as well, in the form of seed grants for our junior faculty. We are honored and privileged to be able to work with such a fine group of individuals from the greater Puget Sound region as we pursue our mission of eliminating blinding eye disease.

At their annual retreat the board set as their goals for 2013-2014 to raise funds to support
• a resident research rotation to create opportunities for residents to gain deeper experience with the research process ($25k per year for three years - $75k total)
• the purchase of equipment for clinical care or research
• targeted recruitment

In 2013, the board established the Vision Research Innovation Awards, which was created by gifts from the Alida and Chris Latham and other members of our CAB. This program allows faculty to apply for $10k – 50k awards that will allow them to pursue new research ideas.

CAB Members

Claire Angel, OD
Mark Bathum
Barbara G. Bedell
Joan Bergy
Kristine I. Bueche
Kevin Callaghan
Dennis Evans
Leigh Fenneman
Dr. Melvin and Nanette Freeman
Cynthia Gensheimer
Dan and Irene Hunter
Camille Jassny
Jack Jolley
Christopher & Alida Latham
Nancy Mee
Richard P. Mills, MD
Fred Minifie, MD
Ernie J. Pearson
James Premo
Suzanne Ragen
Don Sackrider
Phillip Stein
Robert J. Stevens

Back Row L-R: Fred Minifie, Robert Kalina, MD, James Premo, Dan Evans, Tim Cibula, Don Sackrider, Cynthia Gensheimer, Ernest Pearson, Mel Freeman, Kevin Callaghan, Russell N. Van Gelder, MD, PhD, Richard Munsen, MD, Mark Bathum
Front Row L-R: Cynthia Hayner, James Hayner, Nancy Mee, Philip Stein, Barbara Bedell, Camille Jassny, Nanette Freeman, Claire Angel, OD, Robert Stevens, Suzanne Ragen
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Priya and Manoj Thakker, M.D.  
Robert H. Thomas  
Helen A. Thompson  
Robert S. Wright
Select Recent Publications

Academics

Our faculty are drawn to the UW for its rich academic culture and its facility to translate the creative process into clinical practice. We thrive in discovery and innovation for the elevation of suffering from eye disease.

Inadvertent trypan blue posterior capsule staining during cataract surgery
Burkholder BM, Srikumaran D, Nangji A, Lee B, Weinberg RS.

Variations in opsin coding sequences cause x-linked cone dysfunction syndrome with myopia and dichromacy
McClements M, Davies WJ, Michaelides M, Young T, Neitz M, MacLaren RE, Moore AT, Hunt DM.

Stimulation of pontine reticular formation in monkeys with strabismus
Walton MM, Ono S, Mustari MJ.

Macular edema after cataract surgery in eyes without preoperative central-involved diabetic macular edema

Randomized clinical trial evaluating intravitreal ranibizumab or saline for vitreous hemorrhage from proliferative diabetic retinopathy
Diabetic Retinopathy Clinical Research Network.

Esotropia greater at distance: Children vs adults
Herlihy EP, Phillips JO, Weiss AH.

Surgical outcomes and cost basis for resident-performed cataract surgery in an uninsured patient population
Moore DB, Slabaugh MA.

Retention of the boston keratoprosthesis type 1: Multicenter study results

Functional improvement after one- and two-eye cataract surgery in the salisbury eye evaluation
Lee BS, Munoz BE, West SK, Gower EW.

Prevalence of amblyopia or strabismus in asian and non-hispanic white preschool children: Multi-ethnic pediatric eye disease study

Evaluation of the anterior chamber angle in glaucoma: A report by the American Academy of Ophthalmology
Smith SD, Singh K, Lin SC, Chen PP, Chen TC, Francis BA, Jampel HD.
Prevalence and causes of visual impairment in Asian and non-Hispanic white preschool children: Multi-ethnic pediatric eye disease study

Toward first-line molecular diagnosis of ocular infectious disease
Van Gelder RN.
Ophthalmology. 2013 Sep;120(9):1713-4.

Anatomic features and function of the macula and outcome of surgical tenotomy and reattachment in achiasma
Weiss AH, Phillips JO, Kelly JP

Prevalence of myopia, hyperopia, and astigmatism in non-Hispanic white and Asian children: Multi-ethnic pediatric eye disease study

Noninvasive imaging of pulsatile movements of the optic nerve head in normal human subjects using phase-sensitive spectral domain optical coherence tomography
An L, Chao J, Johnstone M, Wang RK.

High-resolution 1050 nm spectral domain retinal optical coherence tomography at 120 kHz A-scan rate with 6.1 mm imaging depth.

Computer-guided orbital reconstruction to improve outcomes.
Bly RA, Chang SH, Cudejko M, Liu JJ, Moe KS.

Enterobacter cloacae postsurgical endophthalmitis: Report of a positive outcome
Butikofer S, Dettori JM, Vemulakonda GA, Slabaugh M.

Human fetal keratocytes have multipotent characteristics in the developing avian embryo.
Chao JR, Bronner ME, Lwigale PY.
Stem Cells Dev. 2013 Aug 1;22(15):2186-95.

An update on retinal stem cell therapy

Is diabetes, even without retinopathy, a risk factor for glaucoma filtering surgery failure in the age of anti-fibrosis agents?
Neutron radiotherapy for adenoid cystic carcinoma of the lacrimal gland

Cytomegalovirus retinitis in the absence of AIDS
Gupta S, Vemulakonda GA, Suhler EB, Yeh S, Albini TA, Mandelcorn E, Flaxel CJ.

Detection of tumor progression in optic pathway glioma with and without neurofibromatosis type 1
Kelly JP, Weiss AH.

Modern management of astigmatism
Lee BS, Lindstrom RL, Reeves SW, Hardten DR.

Extended imaging depth to 12 mm for 1050-nm spectral domain optical coherence tomography
for imaging the whole anterior segment of the human eye at 120-kHz A-scan rate

Pulsatile motion of the trabecular meshwork in healthy human subjects
quantified by phase-sensitive optical coherence tomography
Li P, Shen TT, Johnstone M, Wang RK

Refractive surgical problem: April consultation.
Masket S, Fram NR, Shen TT, Talamo JH, Manche EE.

X-linked cone dystrophy and colour vision deficiency arising from
a missense mutation in a hybrid L/M cone opsin gene
McClements M, Davies WI, Michaelides M, Carroll J, Rha J, Mollon JD, Neitz M,
MacLaren RE, Moore AT, Hunt DM

New genetic technology may help pilots, aviation employees, and color vision researchers
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