CASEY EYE
Institute
OHSU

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A QUARTERLY NEWSLETTER

Building momentum

With expansion, Casey readies for new era in eye care

In May, scores of onlookers cheered on as the last steel beam was hoisted atop a five-story structure under construction on OHSU's Marquam Hill campus. The well-wishers were celebrating the "topping off" of the Elks Children's Eye Clinic, a new, cutting-edge facility that will enable OHSU Casey Eye Institute to reach its fullest potential as a world-class academic eye center.

The nation's first freestanding pediatric eye clinic, the building is named in recognition of a significant philanthropic investment from the Oregon State Elks Association. For seven decades, the fraternal organization has supported children's eye care through the Elks Children's Eye Clinic at Casey.

"Since opening our doors as an eye institute 28 years ago, Casey has been on a steady trajectory toward solving some of the most profound challenges in eye disease, from inherited disorders of the retina and macular degeneration, to serious pediatric conditions such as childhood glaucoma and retinopathy of prematurity," said David Wilson, M.D., Paul H. Casey Chair, Department of Ophthalmology, OHSU School of Medicine and director of Casey.

"This expansion will give us the necessary space, infrastructure and technology to build on Casey's exceptional progress in research, patient care and outreach – with the ultimate goal of ending preventable blindness both here and abroad," he said.

The new building is earning praise for its thoughtful and forward-looking design. A striking glass walkway will change colors in response to light.

Set to open next year, the new 60,000-square-foot building will be home to an expanded pediatric eye clinic, retina services, the Paul H. Casey Ophthalmic Genetics Division, vision rehabilitation, and a clinical trials center.

"The new clinic will enable us to provide timely care to far more children through our nationally-recognized vision screening and treatment programs," said Daniel Karr, M.D., director of the Elks Children's Eye Clinic.

The Wold Family Macular Degeneration Center, also located in the new facility, will allow Casey

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Building Momentum

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to serve the rising number of people with age-related macular degeneration and advance its top-tier research in diagnosis and treatment. The center is named for the late John S. Wold, a Wyoming philanthropist, business leader and former Congressman, who along with his family made a sizeable gift in support of the program.

The new building will free up space in Casey's existing facilities, paving the way for growth in other programs, such as cornea and glaucoma.

Collaboration is key

"The configuration of services and programs in the Elks Children's Eye Clinic reflects a new era in ophthalmology that benefits from a team approach in eye care – even across multiple specialties," said Andreas Lauer, M.D., Thiele-Petti Chair, Department of Ophthalmology, OHSU School of Medicine. For example, children with genetic eye disorders can receive comprehensive care under one roof from pediatric ophthalmologists, retina specialists, ophthalmic geneticists and specialists in advanced imaging and vision rehabilitation.

Dr. Michael Chiang chats with Paul Casey during the beam topping for the new Elks Children's Eye Clinic. The building will house the Paul H. Casey Ophthalmic Genetics Division.

"By bringing together experts in related areas, we've created a collaborative space that better serves patients and is a catalyst for bench-to-bedside discoveries," said Lauer.

A site for the senses

The new Elks Children's Eye Clinic already is earning rave reviews for its inspired and thoughtful design. The project, on budget and ahead of schedule, received the Portland Design Commission's 3rd Annual Design Excellence Award this spring. And earlier this year, it was the winner of an interior design award from the Pacific Northwest chapter of the International Interior Design Association.

The building's interior was designed with input from patients with varying levels of eyesight to ease navigation and comfort. For example, high contrast colors will be used on floors, walls and signage to help patients and visitors safely make their way throughout the building. Patients who are dilating will be able to wait in quiet, dimmable areas.

Perhaps the building's most striking feature is the glass walkway that will connect to the existing Casey facility via the fourth floor. Constructed of a special glass, the sky bridge will dramatically shift in color depending on time of day and viewing angle. The walkway not only acts as a playful gesture bridging old and new, but its changing colors are intended to create a sense of wonder, said Wilson.

The building's exterior will also be a "site for the senses." Patients and visitors will enjoy a sensory garden with seating and pathways. A lighted textured wall ornamented with ribbons of colored glass will evoke the light spectrum.

Of course, the new space would not be complete without the majestic bronze Elk that has stood across from the Casey building for decades. "We're happy to report that the Elk will be returning to a special place of honor when the new building is completed," said Wilson.

Dear Friends

Is Casey a “hub and spoke” or a neural network?

The short answer is “yes”.

As you will learn in this edition of FY Eye, we are well on our way to completing the new Elks Children’s Eye Clinic. This building with be the ultimate physical “hub” of a state, national and worldwide “hub and spoke” system to provide excellence in children’s eye care. Physical spokes connect Oregon’s Head Start clinics and Elks lodges to the “hub” of the Oregon Elks Preschool Vision screening program, where analytics and planning resources will be located. The “spokes” from the Paul H. Casey Ophthalmic Genetics Center transport patients from across the nation who come to the center to benefit from unique diagnostic expertise, clinical trials and gene therapy. Worldwide, telemedicine and the internet provide data “spokes” that transmit information about the worldwide epidemic in retinopathy of prematurity – a blinding eye condition that affects newborns - to the Elks Ophthalmic Informatics Center.

Meanwhile, the Wold Family Macular Degeneration Center functions more like a neural network, constantly refining our knowledge about macular degeneration. Artificial intelligence uses multiple layers of processing - or neural networks - to take broad input and refine it down to a meaningful and useful output. At the Wold Family Macular Degeneration Center, one layer develops and applies sophisticated imaging for early detection and diagnosis, while another layer of expert clinicians and a clinical trials center provide current state-of-the-art care. Finally, funded research laboratories are developing new innovative treatments. The output of this network offers hope for the future for the growing number of patients with macular degeneration.

Sincerely,
David J. Wilson, M.D.
Paul H. Casey Chair, Department of Ophthalmology
Director, OHSU Casey Eye Institute

Gene therapy to grow and thrive in new home

OHSU Casey Eye Institute is a world leader in gene therapy, a groundbreaking technique for people facing blindness from hereditary eye disease.

Not only does Casey conduct the most clinical trials in gene therapy worldwide, it is one of only a handful of eye centers to administer LuxturnaTM, the first FDA-approved gene therapy treatment for a rare childhood retinal disorder.

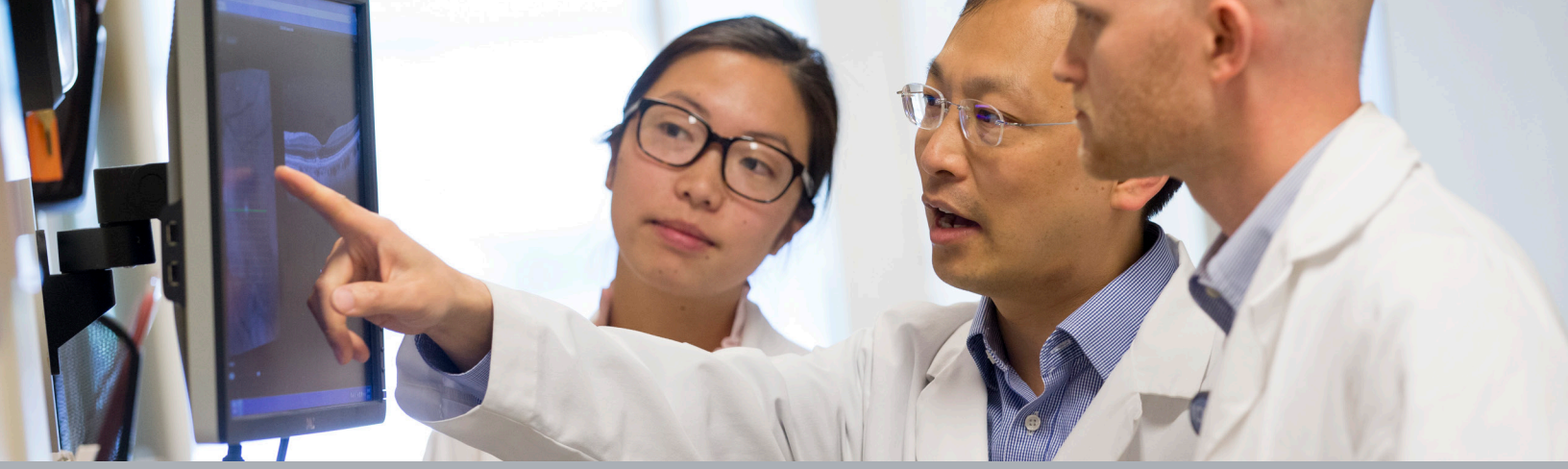
Casey’s prominence in ophthalmic genetics will rise even further thanks to a significant philanthropic investment from longtime donor Paul H. Casey to name the ophthalmic genetics division in the new Elks Children’s Eye Clinic.
“With our expanded space in the new building, the Paul H. Casey Ophthalmic Genetics Division will be well equipped to take on the upsurge in gene therapy trials and treatments, which are expected to quadruple within five years,” said Mark Pennesi M.D., Ph.D., division chief of ophthalmic genetics.

The new space will have all the unique elements required for a successful gene therapy program, including a life-size mobility maze to test vision after treatment and rooms specially designed to examine patients in complete darkness. There will also be more exam space and designated areas for the latest and most advanced diagnostic and imaging technology.

With gene supplementation therapy, non-working genes in the retina are supplemented with healthy copies to correct the underlying cause of the disease. The breakthrough approach has been shown to protect and in some cases, improve vision. The entire process involves specialized testing before and after the procedure, as well as the expertise of highly skilled surgeons able to perform the delicate operation.

Casey’s ability to offer this promising treatment is the culmination of decades of focused research, led by experts in ophthalmic genetics, retina, imaging technology and other specialties, said Pennesi, adding that philanthropic gifts both large and small have powered these accomplishments.

“Coupled with the support of a social worker and vision rehabilitation team, our program can offer the best possible care to patients and their families grappling with the life-altering diagnosis of a genetic eye disease.”



Dr. Thomas Hwang consults with residents Dr. Caitlin Kakigi and Dr. Brad Henriksen. Casey's residency program is among the most sought after in the U.S.

Resident physicians thrive in program's collaborative culture

The summer season typically brings to mind lazy days around the pool or leisurely naps in a hammock. But for OHSU Casey Eye Institute's ophthalmology residency program, this time of year bustles with activity. At the end of June, we bid farewell to our graduating resident physicians and on July 1, welcomed the incoming class of trainees.

The five junior residents, who will join the 10 current trainees, reflect a highly sought after residency program whose reputation continues to grow in stature. The journal *Ophthalmology Times* ranked it among the top 12 programs in the U.S.

Selected from a pool of more than 500 applicants, the new residents not only come from the nation's leading medical schools and with superior test scores, but demonstrate a commitment to community service and scholarship – ideals that are very much valued in training the next generation of ophthalmologists, says Thomas Hwang, M.D., Casey's residency program director. "Most have already published research, ranging from pediatrics and quality improvement to neuroscience," he says.

"Casey especially has people who care deeply about their work," says new resident Claudine Yee, M.D., explaining why she applied to train here. "It is evident in the way they mentor residents, invest time in patients and conduct world-class research to combat eye disease," she says.

One of the program's major draws is the collaborative and supportive culture between faculty and students, says Hwang. "When I go to meetings, other residency program directors complain that the senior residents resist helping the junior ones. I get to brag that we never have that problem.

"This willingness on the part of our seniors benefits the junior resident experience," says Hwang, noting that the first year is particularly challenging as the students begin to hone their eye exam skills. "We encourage our residents to seek out help from seniors, which only improves patient care and causes less stress."

Such a positive atmosphere enables students to flourish during their time at Casey. This year, all five graduating seniors will go on to specialty fellowships at preeminent programs around the country.

"By far the biggest strength of the program is the incredible faculty who work hard to give us the best possible learning opportunities," says graduating senior Matt Duggan, M.D., who will head to Duke University for a fellowship in glaucoma. As an example, he mentioned weekly sessions with Robert Watzke, M.D., "a giant in the field of ophthalmology, well into his 90s, who still came to clinic and spent several hours with each of us," he says.

"The best thing about Casey is the culture of kindness and respect. It feels like a big family," adds Brad Henriksen, M.D., who will remain at Casey for a pediatric ophthalmology fellowship. "People are always engaged in their work and happy to help."

Publications

Between January and April 2019, OHSU Casey Eye Institute faculty published 43 research papers in highly respected national and international journals. Here is a sampling of some of this work.

Myosin-X Silencing in the Trabecular Meshwork Suggests a Role for Tunneling Nanotubes in Outflow Regulation. Sun YY, Yang YF, Keller KE. Invest Ophthalmol Vis Sci. 2019 Feb 1;60(2):843-851.

Casey researchers studied the molecular and structural mechanisms of fluid drainage in the eye. This paper improves our understanding of the potential causes and treatments for glaucoma.

Disruption of Intestinal Homeostasis and Intestinal Microbiota during Experimental Autoimmune Uveitis. Janowitz C, Nakamura YK, Metea C, Gligor A, Yu W, Karstens L, Rosenbaum JT, Asquith M, Lin P. Invest Ophthalmol Vis Sci. 2019 Jan 2;60(1):420-429.

During the past decade, the intestinal "microbiome" (microorganisms in the body) has become an extremely important area of focus regarding human disease. Casey faculty characterized the changes in the intestinal microbiome in an experimental animal model of uveitis. This paper improves our understanding of the relationship between uveitis (inflammation in the eye) and the rest of the body, and may stimulate further research that leads to new treatments of uveitis.

Descemet Endothelial Thickness Comparison Trial: A Randomized Trial Comparing Ultrathin Descemet Stripping Automated Endothelial Keratoplasty with Descemet Membrane Endothelial Keratoplasty. Chamberlain W, Lin CC, Austin A, Schubach N, Clover J, McLeod SD, Porco TC, Lietman TM, Rose-Nussbaumer J. Ophthalmology. 2019 Jan;126(1):19-26.

Casey clinicians and collaborators conducted a clinical trial comparing two common approaches for performing partial-thickness corneal transplantation surgery, and identified the approach that resulted in better vision for patients. This paper provides data to corneal surgeons about improving the quality of care for patients.

A Randomized Trial of Binocular Dig Rush Game Treatment for Amblyopia in Children Aged 7 to 12 Years. Pediatric Eye Disease Investigator Group, Holmes JM, Manny RE, Lazar EL, Birch EE, Kelly KR, Summers AI, Martinson SR, Raghuram A, Colburn JD, Law C, Marsh JD, Bitner DP, Kraker RT, Wallace DK. Ophthalmology. 2019 Mar;126(3):456-466.

Casey clinicians worked with a large national collaborative group of pediatric ophthalmologists to study the treatment of amblyopia ("lazy eye") in children using a novel video game approach that stimulates both eyes. Casey clinicians are involved in many national collaborative research groups, and this paper is may lead to better understanding of mechanisms and treatments for amblyopia in children.

Data-Driven Scheduling for Improving Patient Efficiency in Ophthalmology Clinics. Hribar MR, Huang AE, Goldstein IH, Reznick LG, Kuo A, Loh AR, Karr DJ, Wilson L, Chiang MF. Ophthalmology. 2019 Mar;126(3):347-354.

Casey clinicians and researchers developed a computer simulation model for improving office efficiency, and used it to create a clinic scheduling template that improved patient wait times while still allowing ophthalmologists to examine more patients. This paper may lead to strategies that allow physicians to care for patients more efficiently.

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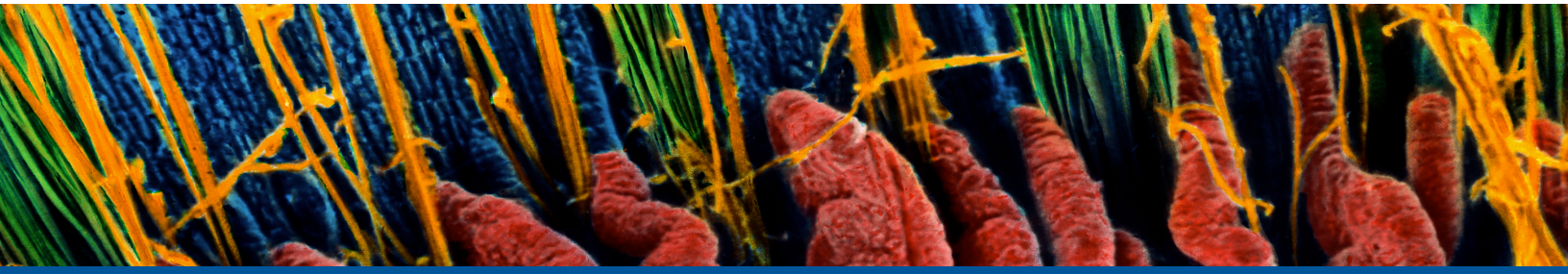

Honors and Awards

David Wilson, M.D., was named the new Executive Secretary of the Heed Ophthalmic Foundation and Society of Heed Fellows. The organization funds postgraduate studies in ophthalmology and the ophthalmic sciences.

Shandiz Tehrani, M.D., Ph.D., has been named to the editorial boards of both the Journal of Glaucoma and Translational Vision Science & Technology.

J. Peter Campbell, M.D., M.P.H., received an award from the National Eye Institute of the NIH for presenting at the Advances in Pediatric Retina course in Salt Lake City in June.

Andreas Lauer, M.D., was nominated and elected chair of the Review Committee for Ophthalmology at the Accreditation Council for Graduate Medical Education. The committee reviews ophthalmology residency programs in the U.S. and makes recommendations regarding their accreditation.

Daniel Albert, M.D., M.S., was awarded an honorary degree from Yale University, where he was a member of Yale Medical School's ophthalmology faculty from 1969-1976.

The Young American Society of Ophthalmic Plastic & Reconstructive Surgery presented **Roger A. Dailey, M.D.** with its Rising Star Award at the spring meeting of the American Society of Ophthalmic Plastic & Reconstructive Surgery in the Bahamas.

Christina Flaxel, M.D., recently become chair of the American Academy of Ophthalmology's Retina Preferred Practice Pattern Committee. The panel develops guidelines to identify characteristics and components of quality eye care.