
UNC EYE

**Developing
New Treatments
for Glaucoma**

+

**How to Wear a Face Mask
Without Fogging Your Glasses**

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Dr. Donald & Susan Budenz

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Anonymous
Steven D. & Laura A. Bergman
Dr. Thomas H. & Sara H. Sears, Jr.

We regret if we omitted your name.

Donor Support makes a difference for our patients, our physicians, our research, our fellows and our residents. Thank you.

A Letter From the Chair



Donald L. Budenz, MD, MPH
Kittner Family Distinguished
Professor and Chair,
Department of Ophthalmology

A handwritten signature in blue ink, appearing to read "Donald L. Budenz".

**UNC OPHTHALMOLOGY
RESIDENCY PROGRAM**
Extremely Competitive
& Highly Selective

625

APPLICATIONS

represents a 30% increase
in applications since 2011.

Dear Friends, Alumni, and Patients of UNC Ophthalmology,

This past year was a challenging one. COVID-19 and the ensuing public health crisis tested our skills, ingenuity, and resolve. Throughout this time, we kept the focus on our mission to prevent and cure blindness through our core pillars of *clinical care*, *education*, and *research*. I am incredibly proud of how our physicians, fellows, residents, photographers, technicians and other staff made the adjustments necessary to provide vision care throughout the pandemic.

The COVID-19 outbreak required us to make significant changes to our daily operations. Thanks to the safety protocols we developed, UNC Ophthalmology was the first of **UNC Health's 157 clinics** to reopen and see patients again on a limited basis. Since then, we have gradually expanded our services while continuing to make safety a top priority for our patients, doctors, and staff.

We also took two important steps to better serve our patients. We hired more clinicians with expertise in needed areas such as cornea, cataracts, pediatric ophthalmology, and neuro-ophthalmology and we opened our first new office in five years, UNC Park Ophthalmology in North Raleigh.

Our commitment to producing leaders who are medically, surgically, and culturally competent continues to attract candidates from across the nation. We've seen substantial growth in residency applications and our program remains extremely competitive. This year we received more than 625 applications for four residency positions, representing a 30% increase in applications since 2011.

We continue to make remarkable strides in research. Our faculty published 35 articles in high-impact peer reviewed journals and earned more than \$2.5M in research grants. This research has the potential to profoundly affect ophthalmic science and patient care. Our focus on gene therapy for the treatments of ocular disease means that one day soon we may have cure for diabetic retinopathy, dry eye, uveitis, or glaucoma.

All of our efforts are driven by the knowledge we have the ability to make a difference. With more than 250,000 North Carolinians living with a visual disability, we remain committed to delivering high-quality care to each and every patient we serve.

Thank you for your confidence in our practice, our teaching, and in our research efforts.

Donald L. Budenz, MD, MPH
Kittner Family Distinguished Professor
Chair, Department of Ophthalmology

ALEXIS WOLSON

Developing New Treatments for Glaucoma

Promising research indicates that glaucoma may be successfully treated through gene therapy — ultimately improving treatment options, effectiveness, and quality of life.



Dr. Terete Borrás, in her lab.

Dr. Terete Borrás, Professor and Director of Research at the UNC Department of Ophthalmology, is developing a novel approach to treat glaucoma through gene therapy.

Glaucoma is a complex disease where damage to the optic nerve can result in permanent vision loss. Globally it's the leading cause of irreversible blindness and it is estimated that over 3 million Americans have glaucoma.

A major risk factor for glaucoma is elevated intraocular pressure (IOP), caused by a build-up of fluid. Dr. Borrás explains it clearly, "Your eyes are filled with fluid, called aqueous humor, that helps keep them inflated like a balloon. This fluid is circulating all the time and provides nutrients and oxygen to this otherwise bloodless organ. It gets made, circulates, then drains out of the eye. The area where the fluid drains out is called the trabecular meshwork (TM). In healthy eyes, the fluids drain freely

to keep the eye pressure steady. When the trabecular meshwork becomes clogged, the fluid builds up, causing increased pressure."

Long term, this fluid build-up and increased pressure causes irreversible damage to the optic nerve, ultimately harming eyesight. Maintaining a functional trabecular meshwork is key to preventing glaucoma. Using gene therapy to regulate the TM and maintain intraocular eye pressure will offer

an enormous clinical advantage to the current daily-drops/surgery treatment. This is where Dr. Borrás has focused her research for the past 25 years.

Dr. Borrás is investigating both a vector, or a vehicle for delivering the genetic material, and the gene therapy that the vector will deliver. For the vector, Dr. Borrás' current preference is an adeno associated virus (AAV) serotype because it enters cells but is nonpathogenic. "My lab is working simultaneously on two avenues of research. Think of it as the delivery truck and the cargo that needs to be delivered. We need to identify and develop the most effective gene that will provide therapy and restore the TM, but we also need to develop the most efficient way to deliver that therapy into the relevant cells."

Most gene therapy involves gene replacement – creating and inserting an edited, or corrected, copy of a gene in order to help the targeted cell regain normal function. With glaucoma, many genes can cause the TM to malfunction, making the creation of a single edited gene inefficient and ineffective on a large scale. That is why the Borrás Lab is centered on using gene modulation to unclog the trabecular meshwork.

"This is a different gene therapy," says Borrás. "This is not gene therapy where we are replacing a gene that is bad or replacing a gene that has the mutation with one that does not have the mutation. That type of therapy only applies to people who have that

specific mutation. The challenge with increased intraocular pressure is that there are many different reasons for a clogged trabecular meshwork. You can accumulate extra material between the cells, cells can change shape, or they may become too rigid or too floppy. All of these can prevent the TM from draining and cause increased IOP. We must use gene modulation to get the TM working properly again. I want to develop a treatment to replace the eye drops that people use by targeting the physiology of the eye. For this disease, we must clear the clog, not solve the genetic mutation."

Genetic modulation comes with challenges, including the need to regulate expression so that the gene activates only when required. Gene expression is a process that allows a cell to respond to its changing environment. It act as an on/off switch to control when proteins are made and also as a control to increase or decrease the amount of protein made. Part of Dr. Borrás' work is identifying gene signals that will turn the gene on only when needed. This will ensure that the gene inserted into the TM effectively performs only when necessary.

There is an overwhelming need for alternative glaucoma treatments. Conventional management includes daily eye drops, laser, or surgery, but none are optimal. For example, prescription eye drops work to slow glaucoma progression but only if taken on a regular and consistent basis. Research has shown that approximately 66% of patients do

not take their glaucoma medications as prescribed.

Treating disease through gene therapy can be a powerful alternative for patients. Creating a tailored therapeutic with increased efficacy and decreased side effects will offer cures for many disorders. This is especially true for the eye, as it is a model organ for gene therapy. It is easily accessible and monitored and it is also one of the few areas in the body that is immune privileged, effectively shielding it from the body's defense mechanism so there are no immune cells to destroy the delivered genes or cause inflammation. In addition, the target cells for glaucoma gene therapy do not regenerate. Therefore, altering their genetic make-up may result in a "forever fix", or long-lasting therapeutic benefit from a single injection into the eye.

This research, while still in the preclinical phase, represents a promising solution for glaucoma. Dr. Borrás notes that these therapies are currently undergoing extensive testing in the lab and may soon be ready for the next step, working with clinicians to collect data. UNC's Department of Ophthalmology has a long history of open and dynamic collaboration between their researchers and clinicians. If this collaboration proves successful, it will provide unprecedented treatment options, improving the quality of life for patients worldwide.



Treating the Disease and Caring for the Patient

ALEXIS WOLSON

"It is a miracle. Without the doctors and nurses at UNC Eye, I think I'd be blind by now."

That is how Ralph Stout starts the conversation about his experience with the UNC Department of Ophthalmology.

"I've been outdoors most of my life and probably exposed my eyes to a lot of bright sunlight," said Ralph, thinking back. "My father was an engineer and a land surveyor. I loved the outdoors and joined him in public work starting at 12 years old. From that point, most of my career and my leisure time involved being outside in the sun, on the coast, or on the water."

In addition to a lifetime of outdoor work, a series of vision and macular issues over the years made eyesight a central concern of Ralph's.

In the early 90's, Ralph was the victim of a serious accident. During his recovery, he was diagnosed with a macular pucker in his left eye. A macular pucker is a layer of scar tissue that forms on the eye's macula, the area that provides the sharp vision we need to read, drive, and see fine detail. Ralph noted this was "long before I went to UNC Eye." At the time, there was nothing that could be medically done. Fortunately for Ralph, his eye healed over the course of a year.

About a decade later, while driving in Idaho, Ralph looked out over the mountains and snow. He vividly recalls the way the sun reflected from the snow into his eye. The blinding glare immediately blocked his vision, requiring him to pull over. It was after this that his eye doctor noticed a pucker in his right eye and recommended he see Dr. Travis A. Meredith.

After that, Ralph's eyesight began deteriorating. When his local eye doctor, Christine McCuen, UNC Eye Class of 2006, identified macular degeneration on his left eye, "his best eye", he went back to see Dr. Meredith, who let him know there was a new treatment they could try.

"I switched to UNC Eye permanently then," Ralph noted. "At that time, Dr. Meredith was the head guy (Department of Ophthalmology Chair) and he and I got along famously. He let me know that there was a new drug that could be injected right into your eye to help you maintain your vision. So we started doing that."

Ralph was apprehensive at first. But Dr. Meredith immediately put both him and his wife Berry at ease. "He took so much time with us," Berry explained. "He explained everything clearly, was a fantastic listener, and answered all of our questions. We knew we were in the best place we could be." Ralph added, "They took such good care of me, I never worried after that day."

According to Ralph, these shots are a miracle. "I am so fortunate to live in this time. My former father-in-law was one of the smartest people I knew. He lived on about 7.5 acres in Raleigh with a garden, and orchard, and a shop. He ended up with macular degeneration at a time when there was no treatment and ultimately went blind. If he were living now, I know that UNC Eye would have helped him preserve his sight."

Dr. Meredith retired a few years ago and Dr. Nick Ulrich took over. Thanks to Dr. Ulrich's ongoing care, Ralph is still able to do things that make his life enjoyable.

Ralph is touched by the personal care he receives. "What I want everyone who comes to UNC Ophthalmology to know," he stressed, "is the absolute quality of the people involved and the attention they give their patients. You don't run into caregivers like this every day."

"I tell the staff every time I see them — you guys are doing something right if you can make someone that lives 50 miles away look forward to coming down and getting a shot in the eye!"



Eye Care for Glaucoma

ALEXIS WOLSON

Mr. Leslie Walton began seeing doctors at UNC Ophthalmology for routine care more than 20 years ago and has seen the clinic grow from a small building in Chapel Hill into the world class Kittner Eye Center.

He explains, “My father was blind in his later years due to macular degeneration. As a result, I was aggressive in having annual eye exams early. Much of my family attends the Kittner Eye Clinic, including one sibling who lives in Maryland and drives down two times per year to visit us and see their eye doctor.”

During a routine visit a few years ago, his doctor noticed elevated eye pressure along with a small deficit on his optic nerve, leading to a diagnosis of glaucoma.

Once diagnosed, he moved from seeing a general ophthalmologist to Dr. Budenz, an expert in the field. He is quick to mention that, thanks to Dr. Budenz and the team at UNC Eye, any deterioration in his vision has been slight and well managed and has not had an impact on his productivity or independence.

Leslie points out that the high-quality care he receives at UNC Eye doesn't happen everywhere. “Even if you have to wait a little a bit longer in the waiting room for your appointment, when you see the nurses and the doctor, they spend the time necessary to answer your questions

and provide comprehensive care. That doesn't happen in visits with other physicians. That really builds trust and confidence in the care you are receiving.”

Earlier this year, just prior to the COVID-19 crisis, Leslie had eye surgery. Despite the shut-down, UNC Eye opened their clinic so he could come in for his critical post-surgical visit. “I was extremely grateful that the clinic's nurse, doctor, and staff were there to care for me, and I felt very comfortable with all of the precautions they were taking for COVID. When the COVID restrictions were lifted, it is my understanding that the Kittner Eye Center was one of the first clinics allowed to see patients because they were so well prepared to manage the virus.”

In considering a gift to UNC Eye, Leslie identifies two priorities – research and clinical care. He believes it's important to support the research that will provide tomorrow's cures while also supporting the staff that care for patients today. To that end, UNC Eye's clinical nursing and tech staff stand out.

“The care and support they consistently provide lets me know that my eye health is important to them, that I am important to them.” He continues. “The whole team consistently goes above and beyond to care for their patients.”

Treating Pediatric Eye Disorders

ALEXIS WOLSON

The experts at UNC's Department of Ophthalmology work to provide the most comprehensive care possible. This includes pediatric ophthalmologists like Dr. Kathy Whitfield.

Pediatric eye problems are often very different from those of adults for the simple reason that children's eyes are still developing. Although babies are born with the ability to see, their visual system rapidly develops throughout childhood, becoming fully formed in the teen years.

As a newborn, babies can see large shapes like faces and distinguish mostly black and white. As they grow, their ability to focus and track objects improves along with other motor skills. At three months old, a baby's eyes should work together to focus and track objects. At approximately five months, a baby's depth perception starts to develop and they begin seeing the world in 3-D.

At about five months old, Corine Walker, an ICU nurse, noticed her son Landon wasn't reaching these and other milestones. He didn't focus when looking at objects. More specifically, when she looked in his eyes, they never seemed aligned. She mentioned these observations to her son's doctor during a check-up, who recommended she see a pediatric ophthalmologist.

Corine took her son to see UNC's Dr. Kathy Whitfield, who specializes in children's eye care. It was there her son was diagnosed with strabismus. Strabismus is a misalignment of the eyes — a condition where both eyes do not look at the same object at the same time. This misalignment can affect one or both eyes and can happen intermittently or constantly. In children, it's important to diagnose and treat strabismus quickly so it doesn't affect depth perception and peripheral vision as the child grows.

Strabismus is usually treated with a combination of eyeglasses, vision therapy, and/or surgery. Corine and



Dr. Whitfield agreed to try minimal interventions first, starting with eye patching and glasses to help strengthen the misaligned eyes. When these interventions did not work (Landon hated wearing the glasses), they determined that the best course of action would be corrective outpatient surgery.

Dr. Whitfield decided to operate on each eye separately about four months apart. During the surgery, Dr. Whitfield made a small cut in the tissue covering the eye to reach the eye muscles. Then, using small absorbable stitches, she tightened the outer muscle and loosened the inner muscle of each eye to help align them.

Corine noticed an immediate difference. Landon's eyes were aligned and she only noticed a slight drift when he was tired or crying. Happily, he also started meeting other toddler milestones such as rolling over and sitting up. Dr. Whitfield recommended glasses to help Landon's eyes stay focused and a specialized therapy to help regain and maintain Landon's depth perception.

Landon is now a Pre-K student. Corine got him a pair of stylish glasses that he enjoys wearing to school. Although he now sees Dr. Whitfield every six months for a check-up, Corine is extremely happy with the results and hopes this surgery might have resolved her son's strabismus for good.

Welcome UNC Eye Resident Class of 2023



Lucy Ma, MD

UNDERGRADUATE

Duke University

MAJOR

BS 2013 in Biology

MEDICAL SCHOOL

Uniformed Services
University of Health
Sciences (2019)

INTERNSHIP

Walter Reed National
Military Medical Center,
Internal Medicine

OUTSIDE INTERESTS

Cross country skiing,
roller skiing, cooking,
baking, origami.



Hannah Miller, MD

UNDERGRADUATE

Mississippi State
University

MAJOR

BS 2014 in Biology

MEDICAL SCHOOL

University of Mississippi
Medical Center (2019)

INTERNSHIP

Spartanburg Regional
Healthcare System,
Transitional Year

OUTSIDE INTERESTS

Painting, horseback
riding, art lessons,
intramural sports, fishing.



Xavier Mortensen, MD

UNDERGRADUATE

Brigham Young University

MAJOR

BS 2015 in Physiology &
Developmental Biology

MEDICAL SCHOOL

University of Utah School
of Medicine (2019)

INTERNSHIP

John Peter Smith Hospital,
Transitional Year

OUTSIDE INTERESTS

Mountain biking,
basketball, golf, skiing,
tennis, alto saxophone,
piano, saltwater aquarism,
spending time with wife
and 19 month old daughter.



Jamie Prince, MD, MPH

UNDERGRADUATE

University of North
Carolina at Charlotte

MAJOR

BS 2012 in Biology

MEDICAL SCHOOL

University of North
Carolina School of
Medicine (2019)

INTERNSHIP

Cone Health,
Internal Medicine

OUTSIDE INTERESTS

Trail running, home
brewing craft beer,
gardening, learning about
other cultures through
international travel.



Welcome New Fellows



John Deans, MD

INSTRUCTOR

Retina

EDUCATION

Duke University School of Medicine, Durham

RESIDENCY

University of North Carolina at Chapel Hill



Anne Poulsen, MD

INSTRUCTOR

Glaucoma

EDUCATION

Jefferson Medical College of Thomas Jefferson University, Philadelphia

RESIDENCY

Penn State Health Eye Center, Hershey

Alana Trotter, MD
(not pictured)

INSTRUCTOR

Oculoplastics

EDUCATION

Medical College of Wisconsin, Milwaukee

RESIDENCY

University of Wisconsin, Madison



Class of 2020: Where Are They Now?



Oleg Alekseev, MD is currently the Heed Fellow in Medical Retina and Inherited Retinal Degenerations at Duke University School of Medicine



John Deans, MD has remained at the UNC Kittner Eye Center as our current Vitreo-Retinal Fellow.



Sailaja Bondalapati, MD accepted a private practice position with Parkwood Ophthalmology in Elkin, North Carolina.



Ryan O'Meilias, MD accepted a private practice position with The Stuart Eye Institute in Stuart, Florida.

New Faculty Introductions



Hussam Banna, MD is a fellowship-trained ophthalmologist in cornea and external disease and refractive surgery, with experience in corneal transplantation including endothelial corneal transplantation (DSEAK and DMEK), cataract surgery and refractive surgical procedures, he also offers Pterygium surgeries with Amniotic membrane transplant or conjunctival autograft, He also manages ocular

surface tumors. His special interest is anterior segment reconstruction and trauma repairs.

Dr. Banna received his medical degree from The University of Jordan in Jordan. Upon completing his residency at Hamad Medical Corporation in Qatar he fulfilled a two-year fellowship in cornea, anterior segment and refractive surgery at University of Texas, Southwestern Medical center, Dallas.



Jacquelyn Bower, PhD is originally from a small town about an hour west of St. Louis, Missouri. After completing her B.S. in Biological Sciences at the University of Notre Dame, she earned a Ph.D. in Basic Pharmaceutical Sciences from West Virginia University at the Centers for Disease Control and Prevention's National Institute of Occupational Safety and Health (NIOSH). Her graduate work focused on understanding the oxidative stress response and DNA damage signaling mechanisms of environmental heavy metal exposure.

Although she would miss the beautiful scenery and amazing people in Morgantown, Jackie relocated to Chapel Hill to begin a postdoctoral fellowship at UNC Chapel Hill where she secured an individual NRSA F32 award to examine the roles of DNA damage signaling, cell cycle checkpoint function, and

genomic instability in cancer biology. She is currently a Research Assistant Professor in the Department of Ophthalmology at UNC Chapel Hill, where she studies the mechanisms of ocular tumorigenesis and DNA-damage related causes of ocular pathogenesis.

Jackie is also a member of the Lineberger Comprehensive Cancer Center Breast Cancer Program, where she collaborates with members of the Hematology/Oncology, Nutrition Research Institute, and Epidemiology departments to explore genomic instability-related mechanisms contributing to chemotherapy resistance and breast cancer recurrence. In her free time, Jackie enjoys hanging out with her German Shepherd, managing two co-ed indoor soccer teams, watching Notre Dame football, and pretending that she knows how to garden.



Maja Kostic, MD is an Assistant Professor in the Department of Ophthalmology at the University of North Carolina at Chapel Hill. She earned her medical doctorate at University of Novi Sad, Serbia, Europe. She trained at the University of Novi Sad, Serbia, Europe

in Ophthalmology. Dr. Kostic completed fellowship training in Neuro Pediatric Ophthalmology & Strabismus at Bascom Palmer Eye Institute, Miami, Florida.

Dr. Kostic is interested in neuro and pediatric ophthalmology.



Beth Friedland, MD is a Clinical Professor in the Department of Ophthalmology at the University of North Carolina at Chapel Hill. She earned her medical degree with honors at the University of Florida College of Medicine. Dr. Friedland received a National Research Service Award from the National Eye Institute while completing a research fellowship in glaucoma and ocular pharmacology at the University of Florida. She completed her residency in ophthalmology at Bascom Palmer Eye Institute at the University of Miami School of Medicine.

Dr. Friedland founded Park Ophthalmology, a private ophthalmology and surgical practice in Raleigh, in 1984. This practice is now merged with UNC Ophthalmology.

She has published in peer-reviewed journals, is a frequent guest lecturer at national conferences, and is co-inventor of two patents that treat

open-angle glaucoma and tear dysfunction. Both patents are licensed to Johnson & Johnson.

Dr. Friedland has mentored and taught medical students and ophthalmology residents for more than 30 years both locally and nationally. She is the recipient of the Triangle Business Leader Women Entrepreneur Award and since 2010 has been recognized as one of America's Top Ophthalmologists by the Consumer Research Council of America.

Dr. Friedland is a fellow of the American Academy of Ophthalmology and a Diplomate of the American Board of Ophthalmology.

Dr. Friedland is dedicated to excellent patient care. When not at work, she enjoys travel and volunteer activities including more than 30 years of service with Eye Care America, which assists indigent patients in accessing ophthalmology care.



Michelle Go, MD is a fellowship-trained pediatric ophthalmology and adult strabismus specialist at the University of North Carolina School of Medicine.

Dr. Go received her BA in Biochemistry and MS in Chemistry from the University of Pennsylvania, Philadelphia, and her MD from The University of Illinois, Peoria. After an Internal Medicine internship, she completed an Ophthalmology residency and served as Chief Resident at the University of North Carolina School of Medicine.

Dr. Go finished a two-year research and clinical Pediatric Ophthalmology and

Strabismus fellowship at Duke University, after which she joined the Ophthalmology faculty at the University of North Carolina School of Medicine.

Dr. Go sees children with a variety of ocular conditions and adults with strabismus. Her specialties include pediatric and adult strabismus, retinopathy of prematurity, pediatric cataract, childhood glaucoma, and eyelid abnormalities in children. Her research interests include ophthalmic imaging in children and treatment for retinopathy of prematurity.



UNC OPHTHALMOLOGY WELCOMES JUAN TRUJILLO, MBA



We are very excited to welcome Juan Trujillo, MBA to the Department of Ophthalmology's administrative offices as our new Associate Chair for Administration (ACA). Juan has been with UNC Eye since 2008, initially serving as a Financial Counselor. In 2012 he was promoted to Administrative Support Supervisor for the Kittner Eye Center, then again in 2016 to Clinic Manager. Juan received his Master of Business Administration from the Institute of Technology-Mexico (UNITEC) Business School in February 2019, then accepted the ACA position in January 2020 where he has expertly helped to navigate the department through a global pandemic.



How to Wear a Face Mask Without Fogging Your Glasses

TIPS FROM THE AAO

Know how to wear a face mask

It may be one of the more innocuous problems of the coronavirus pandemic, but it's a nuisance nonetheless: fogged-up eyewear. It happens when warm breath escapes from the top of your mask and lands on the cooler surface of your lens.

Fit your mask to your face

If your mask doesn't fit your face well, warm air is likely to escape and fog up your lenses. When putting on your mask, make sure to pinch the top of the mask to fit the shape of your nose. If your mask allows it, tighten the sides as well for a good fit.

Use medical or athletic tape to close the gap between the bridge of your nose and the top of your mask. If you don't have tape, try an adhesive bandage.

Wipe your lenses before wearing them

An anti-fogging solution or even gently washing your lenses with soap and water before wearing them may help. This will keep water droplets from building up and fogging your lenses.

Adjust your glasses

Pushing your glasses forward on your nose will allow more air to circulate and keep your breath from fogging up your vision.

Rest your glasses over your face mask

Try pulling your mask up over your nose and rest your glasses on top of it. This will block the air from escaping and prevent fogging. If you try this, make sure your mask still fits properly over your face. Your nose and mouth should be completely covered.

A Letter to Our Patients

We appreciate the trust you place in us, especially during this Coronavirus pandemic. We're constantly monitoring and adjusting to make sure we are safely and effectively providing the care you deserve and have come to expect from us.

We are taking special measures to ensure the safety of our patients, visitors and employees.

These measures include:

- Contacting patients prior to their appointments and setting expectations for their ensuing visits.
- Limiting visitors and companions to (1) parent of a minor child or (1) companion for adult patients who require assistance due to poor vision or mental or physical disability. *2 parents of a minor child may be allowed per the circumstances of the request.*
- Requiring masks of staff, patients and visitors .
- ALL STAFF receive daily wellness checks prior to entering the building.
- Robust cleaning procedures that include daily cleaning and cleaning exam rooms and equipment between each patient.
- Please access our UNC Health COVID-19 Patient Resources page here: unhealthcare.org/coronavirus

In addition, we are taking extra safety measures in our clinic by:

- Asking you to arrive no earlier than your scheduled appointment (to reduce crowding in the registration area and in the waiting rooms). If you arrive earlier than your appointment time we ask that you remain in your vehicle until 10 minutes prior to your appointment time.
- Screening our patients at high risk for COVID-19 infection, beginning at the entrances to our building with repeat symptom screening at the registration desks and finally by the ophthalmic technician.
- Temperature checks for patients and visitors.
- Asking you when you enter the clinic to please wash your hands at the hygiene station located adjacent to the registration and check-in desks and then wait at

the marked lines for check-in and screening. We do practice social distancing allowing 6 feet separation from others in the waiting areas and registration desks.

- Asking patients and visitors to use the restroom prior to their arrival to the clinic; this further decreases the risk of infection spread.
- We have installed plexiglass shields on all slit lamps. This provides added protection from coughs or sneezing.

Future steps to continue to provide safe and compassionate care and service:

- We are installing a plexiglass shield on the fundus camera in our imaging department.
- We are installing plexiglass at each front desk, at each surgery scheduler desk and at each financial navigator desk.

If you or a family member have a fever, cough or shortness of breath or think you have been exposed to coronavirus, call us before visiting. If you are having trouble breathing, seek immediate attention or call 911. If you have any of these symptoms when you come to your visit, we recommend that you not be seen that day with the exception of a vision threatening condition.

If you have an eye emergency and are COVID-19 positive or symptomatic and untested a physician will contact you directly to assess your condition and determine if you should be seen in the clinic. If your condition requires a clinic visit, we will provide you with the pertinent instructions at that time.

UNC Health Eye Centers is committed to providing you with safe, excellent care and the most up-to-date preparedness efforts as we navigate this challenging time together. Should you have any questions or suggestions, please feel free to contact us at 984-974-2020.

Thank you again for allowing us to serve you.

Faculty Publications and Grant Updates

Dr. David Fleischman published an article in the November 2020 issue of *Journal of Glaucoma* titled “The Relationship of Travel Distance to Postoperative Follow-up Care on Glaucoma Surgery Outcomes”. In it he discussed how missing post-operative appointments after glaucoma surgery could affect the outcome of the procedure, but how that has rarely been factored into the algorithm for treatment success. He found that patients that live further from their eye center are more likely to miss follow-up appointments. Similarly, patients who live greater than 20 miles from interstate access, a surrogate for rurality, were also more likely to miss post-operative visits. Given that the type of surgery performed has different demands on follow-up schedules, these data validated Dr. Fleischman’s tendency to consider the patient’s address when deciding upon the safest surgery for them.

The Han Lab published an article in the October 2019 issue of *Scientific Reports* titled “Light-induced Nrf2 $-/-$ mice as atrophic age-related macular degeneration (AMD) model and treatment with nanoceria laden injectable hydrogel” in which they generate the mouse model with similar phenotypes to that of their aged counterparts, providing new tools to study dry-AMD drug intervention.

Dr. Matthew Hirsch published a cover article in the June 2020 issue of *Molecular Therapy* titled “Intrastromal Gene Therapy Prevents and Reverses Advanced Corneal Clouding in a Canine Model of Mucopolysaccharidosis I” in which Adeno-Associated viral gene therapy specifically in the cornea was evaluated for a rare corneal blinding disorder. In this work, Hirsch and colleagues from UNC, Duke, UPENN, and NCSU evaluated a first-in-kind gene addition strategy to provide a missing enzyme to the MPS I canine cornea to reverse corneal opacity, which inhibits vision in a manner similar to human MPS I patients. The results demonstrate that the single dose treatment was well tolerated and reversal of MPS I corneal clouding in post-symptomatic canines was

noted as early as 1-2 weeks post-injection. Efforts to translate these findings to improve the life quality of MPS I patients is underway and would be the first application of AAV gene drugs to the anterior eye for any ocular disorder, providing proof-of-concept for potentially treating corneal diseases in general with AAV gene therapy.

UNC Pediatric Ophthalmologists, Drs. Kathy Whitfield, Michelle Go, and Maja Kostic, participate in groundbreaking clinical research studies with the Pediatric Eye Disease Investigator Group (PEDIG), funded by the NIH/NEI. They are currently studying amblyopia, lazy eye or vision, which is a potentially blinding disease if untreated before the age of 10. This important study will help determine whether it is best to start treatment of amblyopia with corrective lenses alone or initiate corrective lenses with patching immediately. These physicians are also participating in another important PEDIG study for retinopathy of prematurity, a blinding eye disease found in premature infants, to determine if daily dilute atropine drops slow the progression of myopia (nearsightedness) in pediatric patients. Making a difference in children’s vision lasts a lifetime!

Continuing the Kittner Legacy

The multi-generational relationship between the Kittner Family and UNC began more than 80 years ago. An integral part of that relationship was UNC alumnus David Kittner, who graduated in 1939 with a degree in business.

Originally from Weldon NC, there were a handful of things important to David, including his family, his roots, and his connection to Carolina. Through UNC's Department of Ophthalmology, he was able to combine all three.

David gave regularly throughout the years. His philanthropy culminated in 2008 when he endowed a fund to create and name the Kittner Eye Center.

When David passed away in 2014, daughters Susan Kittner Huntting and Harriett Kittner began giving to UNC Eye to continue the family legacy. This year, in honor of their father, they made a major gift to support research.

"My father loved his time at UNC. He knew that as soon as he was financially able, he wanted to give back. He instilled that same sense in me and my sister," said Susan.

"Our father was a lawyer, not an eye doctor," laughed Harriett. "When people would ask him why he gave to the Department of Ophthalmology and Kittner Eye Center, he would say *because everyone has eyes!*"

"It's true," Susan added. "There are so many different issues that need support and eyesight is not the most glamorous of causes. But we believe, like our father, that supporting UNC Eye can impact every part of a community — rural, urban, statewide, and nationwide. We feel very connected to what it stands for. That's why we made this gift."

Both Susan and Harriett serve on the Department of Ophthalmology's Advisory Committee. At a recent committee meeting, Dr. Matt Hirsch presented his research. "During Dr. Hirsch's presentation, I heard a need," said Susan. "He was explaining how his therapy would be able to treat many different diseases with the same symptom (corneal clouding). But due to lack of resources, it was taking longer to get his therapy through the FDA approval process. He didn't have enough research support. That's where I saw our opportunity."



Dr. Hirsch already had one post-doctoral fellow in his lab. Having a second post-doc would allow him to run concurrent lab experiments, apply for additional federal funding, and work with collaborators from Penn, Duke, Wake Forest, and NC State.

Susan and Harriett discussed the gift. "We had been talking about what we wanted to do next, philanthropy-wise, and brainstorming where we could make a difference," recalled Harriett. "After learning about Dr. Hirsch's work and what his lab could accomplish, we knew that supporting his research today would help eye patients in the future. After conferring with Dr. Budenz and his staff, we decided that the biggest impact we could make would be to fund a post-doc in Dr. Hirsch's lab."

Their generosity brought Dr. Hirsch one step closer to reaching his goals, allowing him to hire Prabhakar Bastola. Originally from Nepal, Prabhakar earned his PhD from the University of Kansas Medical Center where his research was focused on understanding novel cancer therapeutics. In Dr. Hirsch's laboratory, Prabhakar is studying the basic biology of the AAV-vectors with the goal of increasing their efficacy in therapeutic gene therapy.

Although the sisters have given smaller gifts, they were inspired to do something big this year. "This is really an extension of my father's love for us and for Carolina," said Harriett. "UNC and the Kittner Eye Center mean the world to our family. He left us a lasting legacy that we are proud to continue."

"We support many causes, but UNC Eye holds a special place in our hearts. We're confident that when we support them, we are supporting talent, skills, and results."



UNC Park Ophthalmology

Park Ophthalmology was founded in 1984 by Beth Friedland, MD, who established and built this successful 35 year-old practice. Park Ophthalmology merged with UNC in early 2020 and reopened as UNC Park Ophthalmology in November 2020. This office provides comprehensive ophthalmology and retina services at this convenient North Raleigh location, currently staffed by Dr. Friedland and Dr. Beatrice Brewington.

UNC Park Ophthalmology
6512 Six Forks Road, Suite 105
Raleigh NC, 27615
For appointments call 919-846-6915



UNC Ophthalmology Locations:

UNC Kittner Eye Center

2226 Nelson Highway, Suite 200
Chapel Hill, NC 27517
Appts: 984-974-2020

UNC Eye Holly Springs

(Located at UNC Rex Healthcare of
Holly Springs)
781 Avent Ferry Road
Holly Springs, NC 27540
Appts: 984-974-4040

UNC Park Ophthalmology

6512 Six Forks Rd #105
Raleigh, NC 27615
Appts: 919-846-6915
Fax: 919-846-2236

UNC Eye at Roxboro

Person Memorial Hospital
615 Ridge Road
Roxboro, NC 27573
Appts: 984-974-2020

UNC Specialty Care at Pittsboro

75 Freedom Parkway
Pittsboro, NC 27312
Appts: 984-215-3220
Fax: 984-215-3221

Alamance Eye Center

1016 Kirkpatrick Rd
Burlington, NC 27215
Phone: 919-304-3937
Appts: 336-228-0254
or 1-800-858-7905



Visit our Optical Shop at UNC Kittner Eye Center!
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