

## **SUNY Downstate Medical Center Department of Ophthalmology**

The State University of New York Downstate Medical Center is among the leading educators of physicians, nurses, and other health care professionals in the State of New York. SUNY Downstate, as it is commonly referred to, is also a leading center of biomedical research, and a vitally important source of high-quality health care for the people of Brooklyn and Staten Island.

Founded in 1860 under a charter granted by the State of New York to Long Island College Hospital, Downstate College of Medicine was the first hospital-based medical school in America. It became part of the State University of New York system in 1950, and today the Medical Center is a multifaceted institution occupying a large campus in Brooklyn. SUNY Downstate Medical Center acquired the old Victory Memorial Hospital in Bay Ridge in 2009, which now houses state of the art OR facilities, and a laser refractive suite available to both faculty and residents.

SUNY Downstate graduates have gone on to leadership positions in health care institutions throughout the country, and faculty of its School of Graduate Studies have been recognized for major contributions to medical science. The SUNY Distinguished Professor Emeritus Robert Furchgott, PhD was awarded the 1998 Nobel Prize for his discovery of the role that nitric oxide (NO) plays in the contraction and dilation of blood vessels. Faculty member Raymond Davidian, MD was the co-inventor of MRI in the 1970's.

### **Education at SUNY Downstate Medical Center:**

SUNY Downstate's educational divisions include the College of Medicine, the School of Graduate Studies, the College of Nursing, the College of Health Related Professionals, and the School of Public Health together having an enrollment of nearly 1,600.

All of the educational programs are notable for their high quality. The middle states recently accredited Downstate in 2016. LCME accreditation took place in 2014. The College of Medicine, for example, ranks seventh in the U.S. in the number of graduates who hold faculty positions at American medical schools. SUNY Downstate also has a history of inclusiveness; it ranks first among all medical schools in New York State in terms of the number of minority students enrolled.

The SUNY Downstate campus is located in the geographic center of Brooklyn, just minutes from lower Manhattan by subway. The campus has a well-equipped student center, and it is an easy commute to the attractive residential areas of Park Slope, Brooklyn Heights, Cobble Hill, Bay Ridge, and other communities.

Most SUNY Downstate educational programs feature participatory learning experiences and close interaction between basic science and clinical activities, as well

as contact with a multi-ethnic patient population presenting with a broad spectrum of clinical disorders. SUNY Downstate's largest clinical affiliate, the New York City-owned (HHC) Kings County Hospital Center, is located just across the street. Together, the two institutions make up one of the largest university hospital complexes in the United States, treating nearly a million patients annually.

### **Dedication to Service:**

As a health care provider, SUNY Downstate's wide range of services extends well beyond the campus boundaries. Clinics headed by Downstate faculty and staffed by faculty and resident physicians meet urgent needs in surrounding communities providing both primary care and tertiary care services to individuals in Brooklyn and neighboring areas.

SUNY Downstate faculty head clinical services in many affiliated institutions, and in 1994, University Hospital of Brooklyn opened its first primary-care satellite Family Health Services, located not far from the main campus. Two more community-based satellites opened in 1998, and additional services are offered in collaboration with a variety of community organizations. In all of these activities, the medical center role as a provider of health care in the community complements and supports its educational mission.

### **Pursuing a Vision for Brooklyn:**

In assessing the potential of our Ophthalmology program in Brooklyn, a comparison is instructive. The SUNY Downstate catchment area contains a population of approximately 685,000; roughly equal to that of the city of Boston. In 1996, the residents of Boston were served by approximately 200 practicing ophthalmologists. In contrast, the SUNY Downstate catchment area had only twelve. This paucity of ophthalmologists has historically motivated many Brooklynites to turn to Manhattan physicians for eye care, as evidenced by the fact that 30 to 40 percent of ophthalmology patients treated in Manhattan live in Brooklyn. At the same time, a large portion of the Brooklyn population receives no ophthalmology care at all. These facts point to both an opportunity and an urgent need. It is our goal to promote Brooklyn as a practice environment for faculty physicians and residents-in-training, stressing the borough's many attractions as well as a place to build a successful career.

There is also a commitment to find ways in which our department can provide desperately needed care for the many community residents with glaucoma, diabetic retinopathy and other disorders that are potentially blinding or that otherwise diminish their quality of life.

The department has been fortunate to win the support and funding for our plans

from SUNY Downstate leadership, and leaders at the department-affiliated clinical practice sites. The financial commitment they have made has allowed us, among many other things, to recruit first-rate faculty, and enabled us to contain costs by utilizing their exceptional expertise across numerous sites. For example, single individuals were made responsible for each of the six-subspecialty programs network-wide, and many faculty rotate among the sites. This approach has permitted us to keep faculty fully occupied and challenged, while extending the benefits of their special abilities to patients at several institutions.

Many other details of our program, and their positive results, are described in the report that follows. Suffice it to say that this influx of faculty, plus our improved facilities and expanded clinical offerings has dramatically increased demand for ophthalmology services. At our largest clinical affiliate, Kings County Hospital Center, outpatient visits and surgeries have risen steadily over the last decade. Other positive outcomes include a significant expansion of research, both clinical and translational.

The department growth to date has been extremely gratifying to us, and we would like to thank all those who have made it possible: the enlightened leaders at SUNY Downstate and our affiliated institutions, the outstanding faculty whose energy, enthusiasm, and ability are achieving for the department new levels of accomplishment and respect, our administrative staff who have complemented our work, and our residents and students, whose questions and idealism never fail to stimulate and inspire. I am confident that we can all look forward to continued growth and improvement together.

### **Ophthalmology Department Report: Nearly a Decade of Change**

Over the past decade, the department has grown through the addition of highly accomplished faculty and support personnel, and it has been reconfigured through a reorganization of the teaching program. It also has expanded its areas of service with the help of increased funding for equipment and facilities at affiliated clinical sites, attained a more comprehensive profile through a renewed emphasis on research, and increased its efforts to help the underserved through a large community outreach program to provide patient education and diagnostic screenings in the borough of Brooklyn.

The most quantifiable change of the last decade has resulted from the addition of more clinical services, increasing patient visits and inpatient admissions at a rate of 20% percent across the various affiliated clinical sites. This is a dramatic gain for Brooklyn, increasing the likelihood that disabling eye disorders will be diagnosed and treated before they can wreak their worst damage.

All of these changes have contributed to enhanced educational opportunities for medical students and the Ophthalmology department's 21 residents in training, infusing

the department with a new sense of dynamism and generating limitless possibilities. At our main resident site, KCHC, comprehensive services in virtually every subspecialty are routinely offered and it has become a major referral source for the entire borough's complicated tertiary eye care.

### **Building on a Distinguished Past:**

The recent developments in the Department of Ophthalmology are a logical extension of an illustrious history. Like the SUNY Health Science Center of which it is a part, the department traces its *roots* back to well over a century, *to* its founding in the 1870's as a division of the medical treatment and education program of Long Island College of Medicine (later known as LICH).

Early distinctions of the institution included the then-innovative educational approach of providing medical students with first-hand contact with patients, and this was a central feature of LICH's early ophthalmology education program, as well. Program innovations of the early 20th century included emphasis on the careful recording of ophthalmologic data. Faculty ophthalmologists also pioneered the incorporation of new instrumentation into ophthalmic practice.

Since 1954, when the ophthalmology program, along with the Medical College, became part of the State University of New York, contributions have included the first intraocular lens implants in New York, performed in 1962 by Division Chief Richard C. Troutman, MD who led the division from 1956 to 1983.

With the help of federal funds, the program was dramatically expanded under Dr. Troutman to include a research program, a highly regarded residency and fellowship training program, and the first ophthalmology clinic program in the city to offer care by specialists in areas including glaucoma, neuro-ophthalmology, retina and strabismus. Other accomplishments of the Troutman years included the electron microscopic description of the anterior chamber angle in glaucoma by Dr. Austin Fink, who also collaborated in the development of the Fuchs-Fink syringe for the removal of congenital cataracts. Besides his development of specialized ophthalmic surgery microscopes, Dr. Troutman holds the patent on a needle developed for cataract surgery, and he was among the early pioneers in the field of refractive surgery, performing the first lamellar procedure in New York in 1977.

In 1984, the Ophthalmology Division was elevated to the status of a full academic department under the leadership of Arthur H. Wolintz, MD, who headed the department until late 1995. Dr. Wolintz, a Distinguished Teaching Professor of the State University of New York, directed the department's Neuro-ophthalmology fellowship and subspecialty programs for many years, while also serving as chief of the ophthalmology program at Kingsbrook Jewish Medical Center. Sadly, Dr. Wolintz passed away in August 2011, but his lasting impression and contributions will remain with the department for many

generations to come.

In January 1996, when Kevin C. Greenidge, MD, MPH, joined SUNY Downstate as Professor and Chair of Ophthalmology, he added to the department's traditional concern for educational and clinical excellence by placing a renewed emphasis on research and community service. Dr. Greenidge served the Department as Chair for nine years.

Dr. Douglas Lazzaro served as Chairman of the department from August 2005 till May 2017. Dr. Lazzaro has also served as Director of Ophthalmology at the Kings County Hospital Center since 2001 and was instrumental in the design of the new 10,000 square foot outpatient clinic, a major component of the residents' 3-year experience. Dr. Lazzaro revamped the resident educational experience by incorporating a cataract surgical simulator into the program, led the complete upgrade of diagnostic technologies, and added more subspecialty educators to the teaching faculty.

Dr. Lazzaro also developed a strong foundation for translational eye research within the department with a focus on glaucoma, vascular retinal diseases, extracellular matrix color perceptions and control of ocular motility. He was also instrumental in the establishment of the SUNY Eye Institute (SEI) – a virtual Eye Institute across the SUNY campuses.

Under Dr. Lazzaro's leadership, the department has gained significant national acclaim with the residency program becoming extremely competitive to match into as it is considered one of the best in not only NY but also in the US. Graduating residents are routinely matching in competitive fellowships where program directors often seek out these well-trained graduates.

After Dr. Lazzaro's departure in early 2017, Dr. Danias assumed the leadership of the Department. As a clinician-scientist, Dr. Danias is committed to strengthening and expanding the academic mission of the department by enhancing resident education, fostering a climate of cutting edge scientific inquiry and providing exemplary clinical care while augmenting the links between the Department and the community.

### **The Department Today:**

Accomplishments over the past decade have included the reorganization of the teaching program and the addition of new full-time faculty lines. The faculty offers their teaching and clinical practice activities among several of the department's affiliated institutions, thus broadening the range of subspecialty expertise available to patients treated at each site.

Most faculty are active members of the SUNY Downstate faculty practice plan. They maintain practices in the outpatient suites at the SUNY Midwood site, the Montague street site and the Wall Street Manhattan site where they can take advantage

of the department's advanced diagnostic and therapeutic modalities.

**Program Highlights:**

New faculty to the Ophthalmology Department have brought to the program unique qualifications in several important subspecialties. Their expertise, added to that of the more senior faculty members, is permitting the department to have Centers of Excellence in the areas of Glaucoma, Cornea, Retina, Ocular Trauma, Uveitis and Neuroophthalmology.

In addition, the department has strength in care of childhood ophthalmic problems through highly respected Pediatric Ophthalmologists, who embrace a philosophy of family centered eye care. The division serves children and their families through a coordinated network of inpatient, outpatient and community programs and facilities.

Recently added faculty expertise also includes outstanding capability in the latest approaches to corneal transplantation, refractive surgery and no-stitch cataract surgery, as well as procedures ranging from vitrectomy to laser cosmetic surgery for the eyelids and other areas of the mid and upper face. We have recently expanded our full time retinal division as well.

The six Ophthalmology Department subspecialties in which clinics now are conducted at clinical affiliates are:

- Cornea, directed by Stephen Kaufman, MD, PhD
- Neuro-ophthalmology, directed by Valerie Elmalem, MD
- Pediatric Ophthalmology, directed by James Deutsch, MD
- Oculoplastics, directed by Roman Shinder, MD
- Retina, directed by Eric Shrier, DO
- Glaucoma directed by John Danias, MD, PhD.

**Advances at the Affiliates:**

The centerpiece of the Ophthalmology Department's structure is its emphasis on site-based ophthalmology services, with each site having a local director. In addition to general ophthalmology services, each site now offers a clinic session each week in each subspecialty. Patients with problems that are particularly complex or difficult to diagnose

may be referred to an affiliate that is better equipped to deal with the condition. For example, cases demanding the most advanced ocular imaging generally are referred to either the Montague or the Midwood sites; the most complex surgical procedures such as demanding retinal procedures requiring specialized equipment are performed at SUNY Downstate at Bay Ridge, University Hospital of Brooklyn, or Kings County Hospital Center.

Teaching is conducted at all clinical affiliates, with SUNY Downstate residents working with patients at the sites under direct faculty supervision. Residents rotate among the sites in order to experience a variety of practice environments. In 2014, a formalized teaching curriculum was set up at Kings County Hospital where 50% of the residents are rotating at any given time.

Since the patient populations served by the affiliates differ in ethnic makeup, predominant age groups, and socioeconomic status, our residents get valuable exposure to the unique range of ophthalmic disorders prevalent in the various groups. Over the past decade, the Ophthalmology Department has been working with leaders at each affiliated institution to improve the local site's facilities and equipment. In return for their investments in the upgrades, the department pledged an influx of new patients motivated to access site-based ophthalmology treatment. The result has far exceeded expectations, with patient visits significantly increased throughout the program.

### **Kings County Hospital Center:**

Local Director, Wayne Scott, MD

Associate Director, Allison Rizzuti, MD

This major, HHC owned hospital is among the largest in the United States and is the center of the Ophthalmology Department's teaching program. With 11 ophthalmology residents, it has been the primary focus of faculty and program upgrades since 2006. Every facet of the Kings County Ophthalmology program had undergone significant adjustment, including modification of the previous care model.

The most visible change at Kings County is a complete expansion and renovation of the eye clinic, completed in 2006. Clinic space has been increased to 10,000 square feet, with 15 modern fully equipped exam rooms. Other modernized facilities include a newly equipped minor procedure room for ambulatory surgical procedures with a cataract surgical simulator for virtual eye surgery. New equipment, including a new visual field analyzer, 2 combination Argon/YAG lasers and a new phacoemulsification unit, have made it possible to perform a far wider range of procedures on site, including state-of-the-art cataract surgery. We began a retinal surgical program in July 2010, and this service has been growing steadily.

A new computer system now allows more efficient and patient-friendly

appointment scheduling. In addition, a fully equipped ophthalmic examining room was constructed at the affiliated Susan Smith-McKinney Nursing Home to allow on-site eye care for its residents. In 2010, the incorporation of all digital tests into the patient EMR allowed residents to view all diagnostic tests on each clinic workstation. This current facility is certainly one of the finer ones in all of New York and is a very complete setting to provide compassionate care to our deserving patients, while also providing an educational platform to teach residents and students.

### **University Hospital of Brooklyn:**

Local Director, Eric Shrier, DO

University Hospital of Brooklyn, physically part of the SUNY Downstate campus and home to the Ophthalmology Department's resident and research laboratories, is a 376-bed hospital that provides a full range of primary, preventive and tertiary care services to central Brooklyn. Our residents are given the opportunity to assist in many difficult eye surgeries performed here.

In 2006, we moved the outpatient clinic to an offsite location in Midwood Brooklyn with increased space and more modern facilities. We have seen steady growth in this setting from 2006-2013.

### **Veteran Affairs New York Harbor Health Care Systems, Brooklyn Campus:**

Local Director, Edward F. Smith, M.D.

The Brooklyn Veterans Administration Hospital has been affiliated with SUNY Downstate since 1975, and, following the Brooklyn VA and Manhattan VA Hospital merger in January 1999, it continues its affiliation with the SUNY Downstate under the new name of Department of Veterans Affairs New York Harbor Health Care Systems, Brooklyn Campus. The program has been under the direction of Dr. Smith since 2013.

Currently, three SUNY-Brooklyn ophthalmology residents are among the 118 residents-in-training. Clinics in all six departmental subspecialties are offered. The patient population is made up primarily of geriatric veterans, with the most common disorders including cataracts, glaucoma, diabetic retinopathy and other retina problems such as macular degeneration. The facility averages 900 clinic visits monthly, and performs approximately 400 surgical procedures each year. Recent developments in services at the VA included the opening of a new, combined Ophthalmology/Optomety outpatient department in September 1998 and a low vision service was added here in 2008.

### **Coney Island Hospital:**

Local Director, Anthony Girardi, MD

Coney Island Hospital, like Kings County Hospital Center, is part of the City of New York's Health and Hospitals Corporation system. Although privatization of the hospital had been discussed, no immediate change in its status is expected, and it remains affiliated with SUNY Downstate. All of the Ophthalmology Department's clinical subspecialties are represented at Coney Island Hospital.

The Ophthalmology Service rotation is comprised of three residents working with faculty in the various subspecialties. A large percentage of the patient population in the hospital's service area is of Russian extraction, with a profile of pathology that is markedly different from other populations in Brooklyn. Patients, who are largely Caucasian and generally older, present with many cases of macular degeneration, diabetic retinopathy, and pseudo-exfoliation glaucoma.

The Coney Island Ophthalmology Service's outpatient facility includes four complete examination rooms, a nursing/intake area, and separate rooms for automated perimetry, ultrasonography and laser surgery, plus a minor operating room equipped with an operating microscope. In addition, the hospital's standard operating room has a three-headed operating microscope with video capability and a wide array of procedures are performed here.

### **Meeting the Needs of the Medically Underserved:**

Besides providing care through its ambulatory clinic programs, surgery suites and inpatient services at affiliated clinical sites, the Ophthalmology Department often engages in outreach efforts with the goal to help identify and bring into treatment Brooklyn residents who are in need of, but are not receiving, ophthalmology diagnostic and therapeutic services. Glaucoma and diabetic retinopathy, in particular, are matters of grave concern in Brooklyn. Large numbers of community residents who are especially vulnerable to these conditions, including African Americans and older individuals of all ethnic groups frequently do not have access to care and come to us via screenings.

Patients screened in community-based programs are also evaluated for ocular manifestations of other medical and neurologic diseases, including arteriosclerosis, hypertension, stroke, multiple sclerosis and brain tumors.

### **Research:**

Nurturing of ophthalmology research at SUNY Downstate is an integral part of the department's goal of training future leaders in Ophthalmology. Our faculty have a commitment to mentorship and expansion of research on campus. The Department

financially supports resident initiated projects as well as pilot projects that involve residents and medical students. Each resident is required to complete a research project prior to graduation. Although most residents elect to complete this requirement by doing clinical research, some have taken the opportunity to participate in basic and translational projects in the labs of faculty with primary or secondary appointments in the Department of Ophthalmology. It is notable that SUNY Downstate Ophthalmology residents have been selected to participate two years in a row at the AUPO resident and fellow research forum (only five such presentations are awarded each year).

The Department research is strong in the areas of glaucoma, vascular retinal biology, and visual neuroscience and there are plans for expansion in the future. There are four federally funded investigators with primary appointments in Ophthalmology with two additional faculty members with secondary appointments having strong eye-related projects. In addition many of our clinical faculty have active clinical projects including industry sponsored clinical trials.

### **Education Programs:**

As a postgraduate Medical education environment, the Department of Ophthalmology offers many attractions for residents. First is the excellence of the department's faculty and facilities, but close behind is the opportunity to serve a population in which the needs are vast. The ethnic and racial diversity of Brooklyn communities provides a rare opportunity for residents to study and treat first hand a wide variety of pathology seldom seen within the US. It also is an environment that speaks to the idealism of young doctors who dream of making a difference.

The department currently provides a three-year-post-graduate training program for 21 residents, with seven new candidates accepted each year. Residents benefit from the commitment and knowledge of a large, expert faculty with a deep commitment to teaching, and they have the opportunity to work with the latest diagnostic and therapeutic equipment.

The organized teaching program consists of approximately 350 hours of didactic lectures per residency, covering all subspecialty areas within ophthalmology. Once a week, all residents leave the clinics and report to SUNY Downstate for an afternoon of grand rounds case presentations followed by didactic presentations. Special program features include a one-week review course at the Wills Review course for PL-2 year residents, a one-week course at UIC Chicago for PL-3 year residents, and a senior trip to an approved academic meeting of their choice for terminal year residents who meet a pre-determined educational goal within the first two years.

The SUNY Downstate program offers outstanding training in surgery, with course work including micro-surgical laboratories, laser surgery and minor oculoplastic surgery and pterygium removal in the first year, glaucoma surgery, vitrectomy, and strabismus

surgery in the second year, and cataract surgery, corneal transplantation and retinal detachment surgery in the third year. The senior year's surgery training includes work to supplement previously given courses as well as advanced techniques approaching fellowship level. All residents exceed the minimum surgical requirements set by the American Council of Graduate Medical Education (ACGME), with individual senior residents performing well over 100 cataract cases. A comparable experience is gained in ocular trauma, corneal surgery, glaucoma surgery, retinal surgery, pediatric surgery, laser surgery, and oculoplastics surgery.

The surgical course is a particular favorite of residents, as it provides outstanding practice opportunities under expert faculty guidance. The Department is in the process of building a microsurgical lab jointly with Otolaryngology. Other special strengths include the extensive exposure to trauma cases the SUNY Downstate program provides, and its well-structured, equivalent rotations through programs at the affiliated hospitals. This provides residents an unparalleled experience with a variety of patients and pathology.

Another outstanding aspect of the SUNY Downstate education program, according to residents, is the opportunity it affords them to work and learn in state-of-the-art facilities where the sophisticated equipment permits performance of the most advanced procedures. They also praise the breadth of the faculty and the program's emphasis on research accomplishment.

Although our training provides residents with the knowledge and ability to enter practice after their time with us, many still go on to fellowship training at some of the most prestigious institutions in the country.

### **Continuing Medical Education:**

The Department of Ophthalmology, along with the Office of Continuing Medical Education at SUNY Downstate is committed to providing timely educational courses for practicing physicians. A Visiting Professor series take place at the medical school with nationally acclaimed clinicians and research scientists sharing their expertise on a monthly basis. Larger CME Courses are directed toward the practical aspects of ophthalmic practice, but are, in addition, designed to convey an understanding of the basic scientific concepts underlying sound clinical practice.

Dr. Lazzaro (the immediate past chair of the department) has been directing the annual **Eye Current Concepts** symposium in Atlantic City NJ. With his move to NYU the meeting will continue as a collaborative project between NYU and SUNY Downstate and is expected to expand to include other NYC programs,

In addition the department puts together an annual June alumni meeting which is followed by the senior resident graduation ceremony. The course agendas for past and future meetings can be found on the website [www.eyecurrentconcepts.org](http://www.eyecurrentconcepts.org).

### **An Image of Excellence:**

The changes made in the Ophthalmology Department at SUNY Downstate over the past few years have been dramatic, making this an exciting and gratifying time for its faculty and staff. Local, national and international recognition of the Department, the residency program and the faculty measured by increased patient volumes, full 10 year accreditation status, increased federal funding for research and increased peer reviewed publication volumes creates a constructive climate within the department.

However, although much has been accomplished, more remains to be done. The changing healthcare delivery environment creates new challenges that necessitate that the department innovates to continue to provide exceptional care to our patients, train the next generation of ophthalmology leaders and push the envelope of knowledge in the treatment of blinding disease. Thanks to the dedication and commitment of our faculty and staff we are confident that we will continue to grow for years to come. Although much of the department's current activities can be viewed at [www.downstate.edu/ophthalmology](http://www.downstate.edu/ophthalmology), newer initiatives may not be updated. We encourage you to contact us at [REDACTED] for any specific questions.