



College of Medicine

Department of Neurology



Academic Year 2020/2021

NEUROLOGY EDUCATION PROGRAMS

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A FEW WORDS FROM OUR CHAIR...

Larry B. Goldstein, MD, FAAN, FANA, FAHA

Ruth L. Works Professor and Chairman, Department of Neurology

Co-Director, Kentucky Neuroscience Institute and

UK Neuroscience Research Priority Area

Interim Director, UK-Norton Stroke Care Network

The Department of Neurology's vision is to be a national leader in delivering high value, comprehensive, patient-centered neuroscience care through multidisciplinary collaboration, innovation and research, education and service.

Rapidly expanding clinical and research programs encompass all areas of neurology including stroke and related disorders, epilepsy, memory and cognitive disorders, multiple sclerosis and related disorders, neuromuscular disorders, neuro-oncology, neuropsychology, headache, concussion and traumatic brain injury, and neuro-ophthalmology.

Our Joint Commission certified Comprehensive Stroke Center has consistently received the American Heart Association Gold Plus and Target Stroke Honor Roll Elite Plus Awards. UK also has a National Association of Epilepsy Centers Level IV Epilepsy Center, capable of caring for the most complex patients with epilepsy and Kentucky's only ALS Association certified ALS Treatment Center of Excellence.

Our expanding fellowship programs include Vascular Neurology, Epilepsy, Movement Disorders, Headache, Geriatric Neurology, and Clinical Neuropsychology. Furthermore, new fellowships in Neuromuscular Medicine and Neurophysiology are currently in development.

The Department of Neurology has a large diverse faculty, engaged, highly motivated trainees, and dedicated staff committed to excellence and working together in an environment that combines the science and art of medicine.

UNIVERSITY OF KENTUCKY DEPARTMENT OF NEUROLOGY

Education is a core mission

Established, growing department within a stable AAMC

Breath of translational neuroscience

Large patient population; diverse training environments

Excellent, dedicated teachers

Superb facilities and infrastructure

University of Kentucky is a Top School for LGBTQ* Students, Campus Pride Index

Why train at UK?

Over 500 medical students

Expanding graduate student programs

M.D./Ph.D. program

~800 interns, residents, and fellows

Students & Trainees

900+ faculty

UK COM Departments & Centers

7 basic science departments

18 clinical departments

23 centers

University Resources

Comprehensive stroke center (Joint Commission certified)

Cardinal Hill Rehabilitation Hospital

Center for Clinical and Translational Science

Sanders Brown Aging Center

EMG lab, AANEM recognition of distinction

Kentucky Children's Hospital

Level 4 NAEC Epilepsy Center

Level 1 Trauma Center

UK Neuroscience Research Priority Area



**#1 HOSPITAL
IN KENTUCKY**
PROOF THAT THE BEST CARE IS RIGHT HERE

Neurology Specific Patient Volumes (FY-19)

Neurology 19,165 Inpatient, 21,197 Outpatient
Neurosurgery 10,052 Inpatient, 15,288 Outpatient
Child Neurology 2,945 Inpatient, 5,361 Outpatient

Resident Accomplishments

- **National Standards:** Residents scored above the national average in all sections of the Neurology Residency In-Service Training Exam
- **National Conferences:** Platform & poster presenters at AAN, ANA, AES, AHS, International Stroke Conference, NANOS
- **National Scholarships:** American Academy of Neurology, J. Kiffin Penry Epilepsy Program
- **National Publications:** Stroke, Annals of Neurology, Neurology, JAMA Neurology, Neuro-Ophthalmology, Cephalalgia, Headache, Current Neuroscience
- **Boards:** 100% pass rate

What about after graduation...

- 100% first choice fellowship matching for last six years
- Seven graduates in last three years joined as faculty
- 2020: 100% obtained fellowships (Movement Disorders, Stroke, Epilepsy, Neuromuscular)
- 2019: 100% obtained fellowships (Movement Disorders, Stroke, Epilepsy, Neuromuscular, Headache)
- 2018: 100% obtained fellowships (Neuro-oncology, MS, Movement Disorders, Stroke, Epilepsy)
- 2017: 50% obtained fellowship (U. Miami, Rush); 50% sought and obtained hospitalist positions
- 2016: 100% obtained fellowships (U. Penn. Vanderbilt x 2, Emory, U. Miami)

MEDICAL STUDENTS

We believe that a great career in neurology starts early. We value the time we have with our medical students and do our best to provide them with a lasting, positive, impression and a sound introduction to Neurology.

MD-832: Neurology Clerkship

The Neurology Clerkship is a four-week course for third-year medical students. Students gain comprehensive exposure to Neurology through clinical experiences, “Flipped Classroom” didactics, and independent study. Under the tutelage of resident and faculty physicians, students spend one week in outpatient clinic and three weeks on inpatient services: General Neurology Wards, Stroke Wards, and one additional experience such as Interventional Neurology, Neuro ICU, Neuro-ophthalmology, Consult Neurology or Child Neurology, selected by the student. Students attend case discussion sessions, Chair’s Rounds and Neurology Grand Rounds. The goal of the clerkship is for students to attain clinical skills in Neurology that will help them achieve competency.

ACTING INTERNSHIP COURSES

The Department of Neurology offers primary acting internships in Adult and Child Neurology. The acting internship experience is designed to provide students with an advanced level of direct patient care responsibility. With the appropriate oversight of resident and/or attending physicians, the student assumes the responsibilities of a first year intern.

Acting Internship in Adult Neurology, NEU-850

The rotation typically consists of inpatient service on Stroke Wards and General Wards, three overnight calls, and two half-days in Outpatient Neurology. Students participate in ward rounds and consult service with residents and attending staff. They attend the regular teaching conferences of the Department of Neurology and complete assigned readings of journal articles to develop their medical knowledge.

Acting Internship in Child Neurology, NEU-851

Students gain clinical experience in Child Neurology under the supervision of neurology residents and attending physicians. The rotation typically consists of inpatient service on Child Neurology wards at the Kentucky Children’s Hospital and 2-4 days in outreach clinics in Eastern Kentucky. Students participate in ward rounds with residents and attending staff and attend the regular teaching conferences of the Department of Neurology.



Medical Student Lectures

- Adult emergencies
- Objective Structured Clinical Examination (OSCE)
- Child Emergency
- Lumbar Puncture
- Localization
- Localization & differential - cases can be from actual patients or from literature sources; localization is discussed at length

ADVANCED DEVELOPMENT PHASE ELECTIVE

Clinical Neurophysiology, NEU-854

This course provides experience with clinical electrophysiological studies in neurology, including Electroencephalograms (EEG), Sensory Evoked Potentials (EP), Electromyograms (EMG), Nerve Conduction Velocity (NCV) studies, and intra-operative monitoring. Students gain direct experience in performing and interpreting such studies by spending time on the inpatient Epilepsy Monitoring Unit (EMU) and in EMG and EEG labs. If circumstances allow, students are invited to observe unique procedures such as epilepsy surgery or placement of a Vagus Nerve Stimulator (VNS).

SIGN: Student Interest Group in Neurology

Sponsored by the American Academy of Neurology (AAN), this group is open to medical students at all levels. The SIGN provides exciting opportunities to medical students with an interest in Neurology:

- Socialize with students, residents, and faculty who share an interest in Neurology
- Shadow neurologists
- Connect with the AAN
- Apply for SIGN member scholarships with AAN
- Increase neurology knowledge
- Develop experience, leadership, and valuable contacts
- Join the nationwide SIGN network

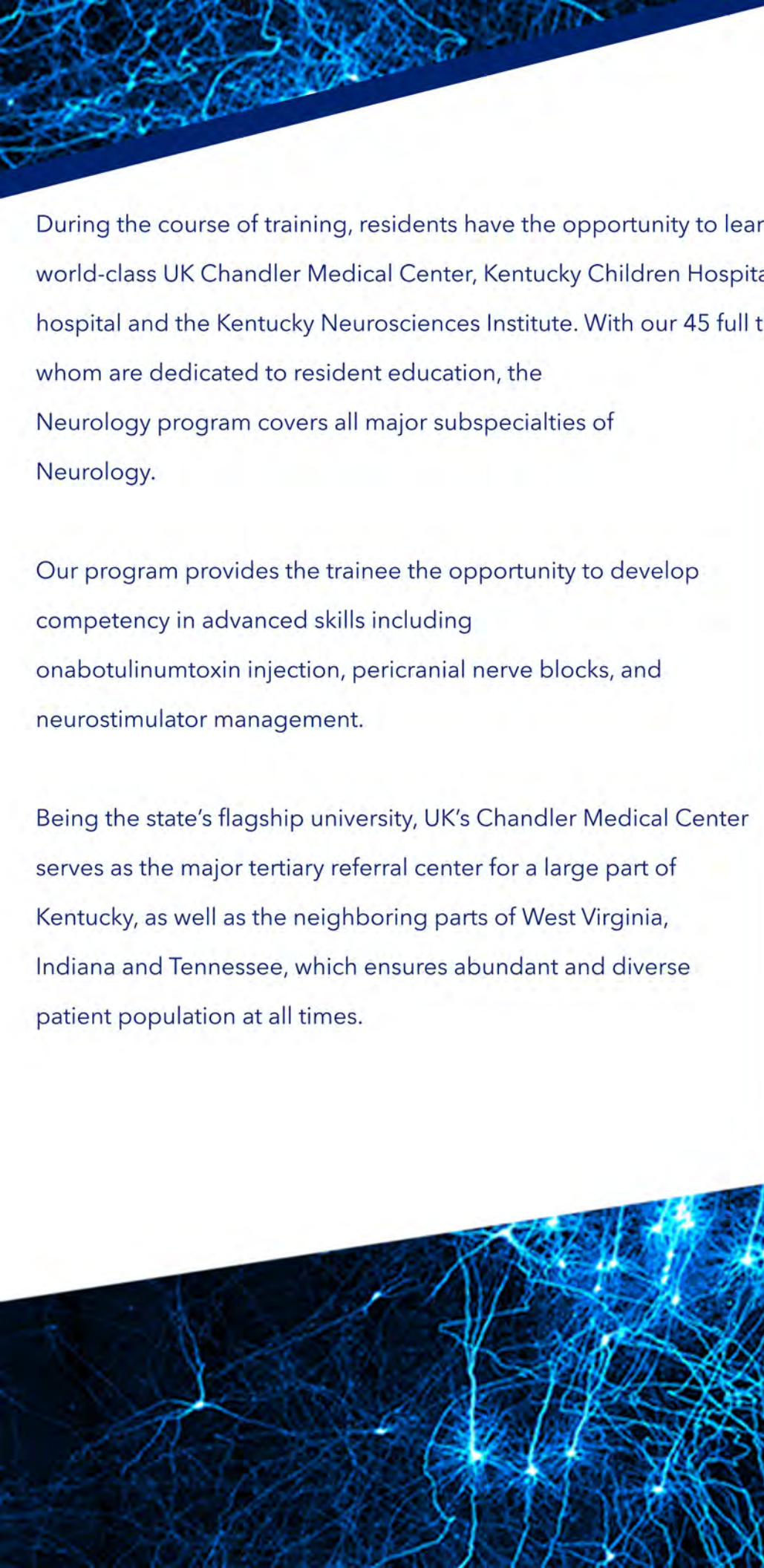


ADULT NEUROLOGY RESIDENCY

The University of Kentucky College of Medicine, Department of Neurology is proud of a long tradition of excellence in training in Neurology that was started in the 1960's by the department's founder, Dr. David B. Clark, with a mission to produce the best clinical, research and academic neurologists.

The Neurology program is currently approved to enroll seven categorical residents each year in its ACGME (Accreditation Council for Graduate Medical Education) accredited Adult Neurology program.

Starting in academic year 2020-2021 the Adult Residency program will be moving to a "4+1" schedule. This format has received excellent feedback from trainees in other, similarly sized programs. The 4+1 schedule involves setting up a recurring schedule for each resident so that every 5th week is spent wholly in clinic, and the remaining weeks are either inpatient rotations, elective or vacation. We anticipate this will improve the training quality and the trainee experience in many ways, such as allowing greater freedom to develop new training opportunities, such as longitudinal outpatient elective experiences and telemedicine training.



During the course of training, residents have the opportunity to learn and care for patients at the world-class UK Chandler Medical Center, Kentucky Children Hospital, the Veteran's Administration hospital and the Kentucky Neurosciences Institute. With our 45 full time and 20 affiliated faculty, all of whom are dedicated to resident education, the Neurology program covers all major subspecialties of Neurology.

Our program provides the trainee the opportunity to develop competency in advanced skills including onabotulinumtoxin injection, pericranial nerve blocks, and neurostimulator management.

Being the state's flagship university, UK's Chandler Medical Center serves as the major tertiary referral center for a large part of Kentucky, as well as the neighboring parts of West Virginia, Indiana and Tennessee, which ensures abundant and diverse patient population at all times.

ELECTIVES

- Advanced stroke
- Cognitive neurology
- Epilepsy
- Headache
- Movement disorders
- Multiple sclerosis/neuroimmunology
- Neuro-critical care
- Neuro-muscular
- Neuro-oncology
- Neuro-ophthalmology
- Neuro-pathology
- Neuro-psychology
- Neuro-radiology
- Sleep
- Research

[Click here to visit our website](#)

CHILD NEUROLOGY RESIDENCY

The Child Neurology Residency Program also began in the 1960's with founder Dr. David B. Clark, a world-famous child neurologist. Since that time, the department has continued Dr. Clark's commitment to integrate child and adult neurology to produce the best clinical, research, and academic neurologists.

Child Neurology residents start with two years in the Pediatrics department to garner a sound grasp of general pediatric care. They then spend 12 months on adult neurology services and 12 months of selective time interwoven with child neurology experiences throughout the three years of the program.

All of our Child Neurology residents and attending physicians regularly participate in our rural, Appalachian clinics. These clinics are supported by local nurses and staff.

Moreover, with the assistance of the Commonwealth of Kentucky we are able to fund services, tests and medications for any Kentucky child with neurological complaints or disease, regardless of the family's ability to pay. In part because of our large Appalachian referral area, we see a substantial number of children with unusual neurological disorders, which benefits the trainees and the patients.

OPPORTUNITIES FOR PROCEDURAL COMPETENCY IN:

Nerve blocks

Botox

VNS programming

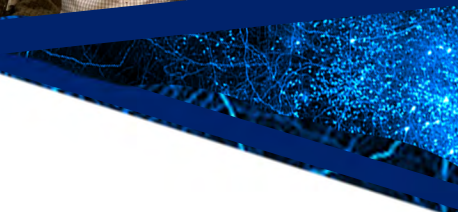
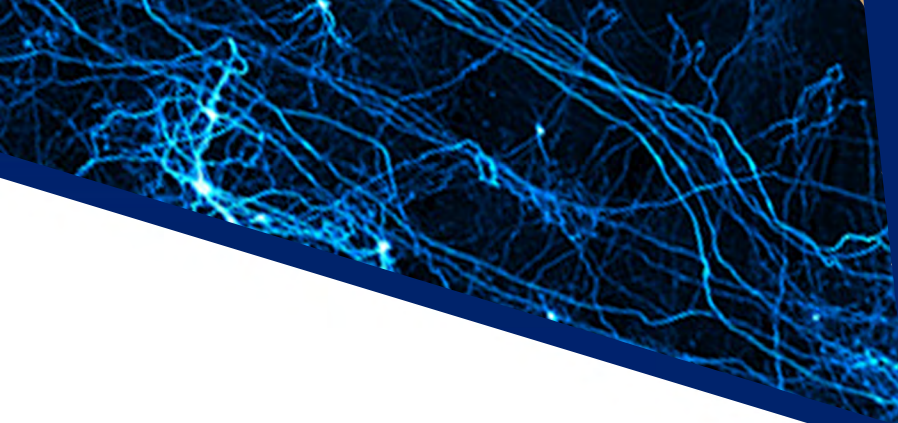
Nusinersen administration

EEG

EMG

Lumbar punctures

[Click here to visit our website](#)



Child Neurology

- KNI clinic
- Inpatient and consultation services (PICU, NICU, Peds wards)
- Regional clinics – 13 clinics throughout Eastern Kentucky
- Telemedicine

Stroke

- Joint Commission-Certified Comprehensive Center
- Consistently receives AHA Get with the Guidelines Gold Plus and Target Stroke Honor Roll Elite Plus Awards

Epilepsy

- NAEC Level IV Epilepsy Center
- Inpatient EMU

General Neurology Ward and Consult Service

CLINICAL SERVICES

SUBSPECIALTY CHILD SERVICES

Movement Disorders

DBS Clinic

Neuromuscular disorders

Multiple Sclerosis

Memory Disorders

Epilepsy

Neurogenetics

Headache

Botulinum treatment

Neurotoxicology

Neuro-Oncology

FELLOWSHIPS

Clinical Neuropsychology


This fellowship prepares clinicians to practice independently, ethically, and competently in the field of clinical neuropsychology. Our training corresponds to the Houston Conference guidelines and emphasizes depth and breadth of knowledge in brain-behavior relationships. The Neuropsychology fellowship is a two-year program focusing on clinical skills and knowledge. Approximately 70% of the fellow's time is engaged in direct patient care, report writing, and clinical supervision. Fellows are provided with predominantly adult clinical experience, but includes exposure to pediatric cases. The remainder of the fellow's time is dedicated to didactic learning experiences, research, and professional development. Flexibility remains in the structure of the program to support the professional growth and goals of individual fellows. Fellows anticipating careers in an academic medical center may tailor the second year to include additional research time. Provision of the second training year is contingent on first-year performance.

Epilepsy

The ACGME certified Epilepsy Medicine Fellowship is a twelve month program with the prerequisite of successful completion of a residency program in adult neurology or child neurology accredited by the ACGME or the Royal College of Physicians and Surgeons of Canada. The curriculum includes no less than six months of full-time patient care in inpatient and outpatient epilepsy. The fellow is clinically trained through direct patient contact in both inpatient and outpatient settings. Elective time is made available for trainees to pursue individual interests.

Geriatric Neurology

The Geriatric Neurology fellowship is a one-year training program accredited by the United Council for Neurologic Subspecialties (UCNS). It provides advanced training in the specialty of geriatric neurology in a protected environment that allows flexibility in training and encourages pursuit of higher academic goals. Multispecialty experience is gained through direct clinical exposure in Memory Disorders, Movement Disorders, Cerebrovascular, and Neurorehabilitation clinics. Our focus on translational research activities is ideal for candidates who hope to pursue a career in academic neurology, developing research and educational skills without sacrificing clinical exposure to a wide array of age-related neurologic diseases. Fellows are also be in the medical education that will develop skills that will directly contribute to their future and academic success.



Headache Medicine

Our comprehensive clinical headache program integrates treatment of adult and pediatric patients. The fellowship focuses on clinical care, including evaluation and treatment of outpatients in the integrated Neurology/Neurosurgery Kentucky Neuroscience Institute and inpatients at our state-of-the-art hospital. Extensive experience is provided in the use of Botulinum toxin, trigger point injections and infusions. Multidisciplinary experience is gained through participation in Orofacial Pain, interventional Pain and Neuro-Ophthalmology clinics. The fellow participates in regularly scheduled meetings, including teleconferences organized by the American Headache Society. Fellows are also involved in the training of residents and medical students and provide consultations on the in-patient service.

Movement Disorders

This is a one or two year fellowship. The first year focuses on clinical care, including evaluation and treatment of inpatients and outpatients in the integrated Neurology/Neurosurgery Kentucky Neuroscience Institute, and in/outpatient rehabilitation at Cardinal Hill Rehabilitation Hospital. Extensive experience is provided in the use of botulinum toxin and patient evaluation for DBS surgery and stimulator programming. Fellows are encouraged to take part in translational research during the first year; those who elect for a two-year experience will spend most of the second year participating in translational or basic research.

Vascular Neurology

The Vascular Neurology fellowship is a one-year clinical training program accredited by the ACGME since 2013. During the course of the year, the fellow gains advanced training and experience in the acute treatment of ischemic and hemorrhagic stroke, primary and secondary prevention of cerebrovascular disease, neurosonology, and neuroradiology. The fellow has clinical rotations in neurocritical care, interventional neuroradiology, and physical medicine and rehabilitation (focus on post-stroke care), as well as research rotations. The fellow is provided opportunities to attend regional and national conferences focused on stroke care.





SYMPOSIUMS & CONFERENCES

Practical Update in Neurology & Neurosurgery

This annual, one day event attracts practitioners from across the Commonwealth and surrounding areas. Nearly 250 medical professionals attended last year's symposium. Our goal is to collaborate with our healthcare partners – the community neurologist, internist, pediatrician, emergency medicine physician, family practice physician, advanced practice provider, and more. Past agendas have included topics on incidental aneurysms, headache and epilepsy during pregnancy, Parkinson's disease, recurrent stroke, PFO, and impaired patients.

Obstetrical Neurology Conference

This conference was created to educate physicians and residents in the field of Neurology, as well as residents, nurse practitioners, midwives, and physicians in the field of Obstetrics on issues where the fields of Neurology and Obstetrics intersect. The one-day course featured speakers from multiple disciplines including Neurology, Obstetrics, Anesthesia, and Neurosurgery.

Clinical Translational Research Symposium

This annual, one day event, enables clinical, basic, and translational neuroscience investigators; including faculty, trainees, laboratory directors and program directors throughout the university community to discuss their work, share progress, and develop collaborations.

[Click here to see what events are coming up](#)

Trainee Research Day

This event allows medical students, residents, fellows, and other neuroscientists to present their research to our own department's faculty and to researchers from a variety of UK academic departments, including the Sanders-Brown Center on Aging, and representatives from our Level 4 Comprehensive Epilepsy Center and Comprehensive Stroke Center. The intimate environment creates a functional atmosphere and promotes quality conversation with approximately 90 physician practitioners, including epileptologists, headache specialists, Vascular neurologists, movement disorders specialists, general neurologists, and many more.

Stroke Translational Research Advancement Workshop (STRAW)

This workshop provides an update on the state of translational stroke therapeutics. World-class experts in stroke research present recent advances in the translation of preclinical drug discovery to therapeutics for stroke treatment.

DIDACTICS

Didactics are held at 8:00 AM and 12:00 PM each week day, with the topics rotating monthly. In addition to foundational topics such as neuroanatomy, neuroimaging, and EEG interpretation, specialty topics are also covered. Areas such as palliative care, patient/family dynamics and interactions, manuscript development, and many more have been addressed by our esteemed faculty and other experts. We strive to make our didactics as dynamic as possible, to meet the needs and desires of residents, faculty and other institutional leaders and to address the newest innovations and best practices in graduate medical education. All didactics are offered via Zoom technology, allowing trainees to participate no matter where they may be at the time of the conference

[Click here to join us virtually](#)

**** not all sessions are open to the public*



Equity, Diversity & Inclusion

As healthcare providers, we have an obligation to do no harm. But our obligations go further to prevent harm from befalling others because of our inaction or silence. We can no longer be idle while vestigial institutions and implements of racism that perpetuate inequity remain intact. Silence for the sake of avoiding an uncomfortable truth is not acceptable and it never was

acceptable. Indifference to racism makes us complicit in systems that have oppressed, marginalized, and scapegoated people for generations. In a country long heralded as the land of the free, being Black or a member of an underrepresented minority group cannot be a disqualification for enjoying the rights and privileges afforded to others.

Racism and social injustice in the United States claimed the lives of George Floyd, Breonna Taylor, Ahmed Arbery, and countless other persons of color. Breonna Taylor, a fellow Kentuckian, a UK alumna, and a health care provider, died at the hands of people who were supposed to be keepers of the peace. Violence is but one facet of the chronic and pervasive racism that has plagued our communities. Medicine is not immune to the consequences of our nation's inequities; they affect us, our colleagues, and our patients and impair ability to provide comfort and care. As healthcare providers, we began addressing symptoms such as implicit bias and health care disparities by recognizing that they stem from hundreds of years of oppression

We proudly stand with other members of the medical community and proclaim Black Lives Matter. We stand with the people of color and others in our community and across the United States in announcing the abhorrent treatment that Black people, other persons of color, and other underrepresented groups have endured. We stand with others who pledge to be anti-racist and who work to tear down the pillars of institutional racism.

As a Department, UK Neurology is committed to equity, diversity, and inclusivity. With only 3% of Neurologists being Black or African America and only 7% Hispanic-Latino, in an effort to counter decades of neglect, we commit to recruiting colleagues from underrepresented groups in ensuring that they thrive in an environment that is free from racism and bigotry. We commit to supporting young underrepresented persons in our community so that we can have greater diversity among physicians in our field in the future.



We must do better. We will be better.

Our department has an active committee, chaired by Dr. Ima Ebong, with members from faculty, trainees and staff, dedicated to Diversity, Equity and Inclusion. With representation from multiple ethnic groups, sexual orientations, gender identities and religious beliefs, we strive to ensure that every action we take is thoroughly vetted by all involved, and that we work towards a mutual goal of a better today and tomorrow.

Various members of the committee have undergone training to be eligible to have their office designated as a "SafeZone, an accepting place for those who identify as lesbian, gay, bisexual, transgender, and those who are questioning their sexuality or gender. This training is offered annually to all members of the Neurology team. We also have a guest speaker present an annual LGBTQ+ Healthcare 101 Lecture to ensure that our trainees are comfortable and knowledgeable when speaking to those who identify as part of the LGBTQ+ community. We strive to live up to the Statement for Equity, Diversity and Inclusion with everything we do.



WELLNESS

Recognizing that physician wellness is an integral part of optimizing patient care, we worked to establish programs and initiatives to foster and maintain resident wellbeing. We designed our resident wellness program for sustainability, even as the residency directors change over the years. We want to enable residents to attend to their own mental and physical health, to have opportunities to socialize with their peers, and to share their knowledge with each other in a relaxed atmosphere. The department helped develop contracts with several area businesses and entities to support the initiatives.

Mental and physical health initiatives

- Semiannual massages - Provided (no cost to residents) at a time scheduled by the resident.
- Mindfulness classes provided at a discount rate to trainees, sponsored by a local yoga studio
- Peer and faculty mentor programs - Third-year residents serve as mentors for incoming first-year residents to establish a supportive relationship that continues throughout the entire residency program. Incoming residents are also assigned a faculty mentor to help guide their development
- Semiannual step challenge to encourage fitness - Resident teams are encouraged to compete amongst themselves and faculty to accrue the highest average daily step count to win the "Astasia-Abasia Cup" trophy
- Lectures from pastoral care focused on finding meaning in medicine and how to address feelings of burnout and difficult patient care situations
- Regular supplies of food/drinks for residents on busy services/call/night float
- Promotion of GME-sponsored (no cost to the resident, anonymous) outpatient psychology services that are independent of the university and hospital system

RESEARCH

The University of Kentucky is a leading research-intensive university. Scholarly activity, developing new knowledge, and innovation are components of our core missions. Consistent with this emphasis, the College of Medicine and the University supports neuroscience investigators. Neurology focused resources include:

Kentucky Neuroscience Institute Clinical Research Organization (KNI CRO)

The KNI CRO supports the conduct of world-class neuroscience clinical trials and clinical translational research. The KNI CRO provides guidance through its clinical trials and research expertise, economies of scale and institutional support. It is comprised of a diverse staff dedicated to implement and conduct clinical research in a timely manner and with the highest standards of Good Clinical Practice, including regulatory and financial expertise and a staff of clinical trial coordinators.

UK Neuroscience Research Priority Area Initiative (NRPA)

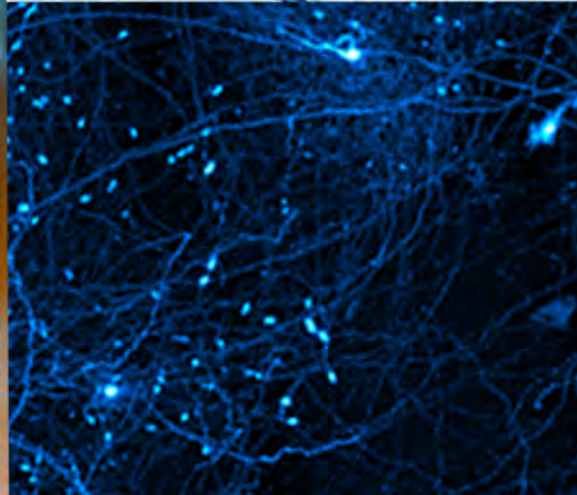
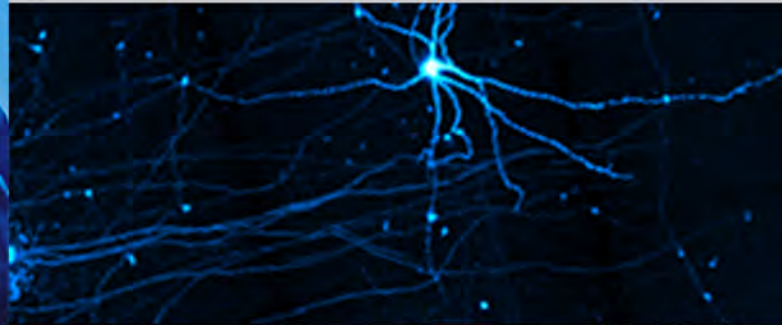
The University of Kentucky identified the neurosciences as a Research Priority Area in 2019 based on the breadth of research being conducted on campus, scholarly productivity, extramural funding and importance to the citizens of the Commonwealth. The NRPA includes almost 300 faculty from nine colleges and 34 departments. It supports a series of initiatives aimed at broadly supporting neuroscience research across campus. Some of these include a neurosciences biobank (the NeuroBank), pilot research awards, equipment grants, trainee scholarships, min-fellowships, and statistical consultation.



Medical Student & Resident Research

The department offers research elective opportunities for medical students interested in the neurosciences. Each resident, in addition to conducting a Quality Improvement activity using standardized methodology, design and complete a research project with structured guidance from a faculty mentor. The goal is not only to conduct a research study, but to expose trainees to rigor required to competently identify a question, form a hypothesis, perform a relevant literature search, design a feasible project, develop an analytic plan, collect and interpret data, and produce a final report. Progress and results are shared with faculty and trainees with posters and oral presentations during an annual Trainee Research Day. Trainees also submit their work for publication and presentation at national meetings with several receiving travel awards from professional societies.

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