



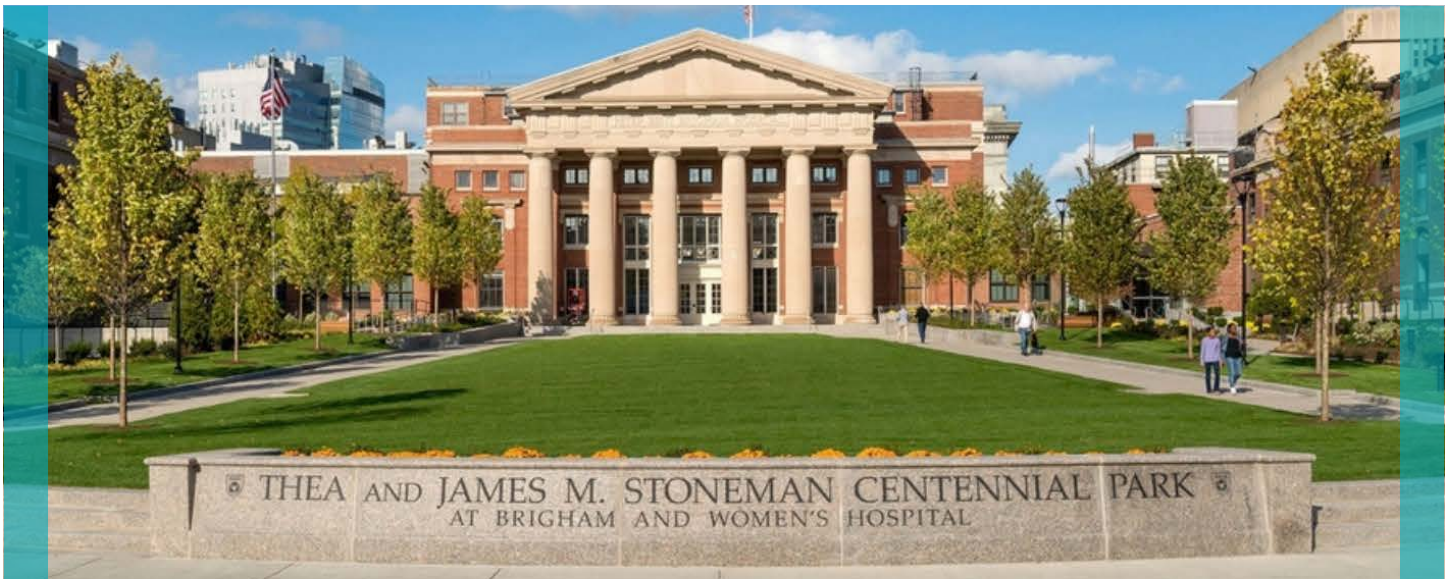
2021 - 2022

Neurosurgery Residency Program

 **Brigham and Women's Hospital**
Founding Member, Mass General Brigham

 **Boston
Children's
Hospital**

 **HARVARD**
MEDICAL SCHOOL



Neurosurgery Residency Program Overview

Thank you for your interest in the Neurosurgery Residency Program of Brigham and Women's Hospital, Boston Children's Hospital and Harvard Medical School. In our program, trainees are exposed to a wealth of neurosurgical pathology. Residents learn the fundamentals of surgical skills, the care of critically ill patients, and the principles of neurologic clinical evaluation, differential diagnosis and interpretation of neuro-imaging. These goals are facilitated by clinical rotations on ancillary services and in the various neurosurgery hospital and clinic services.

A rich and graduated neurosurgical experience and close mentorship by internationally-recognized clinical faculty allow the development and maturation of outstanding operating skills. Technical and clinical experiences are complemented by emphasis on clinical judgment, evidence-based outcome assessment, and thoughtful analysis of morbidity.

On behalf of each faculty member of the Department of Neurosurgery and our team of residents, we can affirm that we have no mission more sacred than that of training the next generation of neurosurgeons.

Contact:

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Program Manager
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E. Antonio Chiocca, MD, PhD
Department Chair



G. Rees Cosgrove, MD
Residency Program Director

What you need to know STAT



4,243

surgical cases per year

Neurosurgery and Neurology
ranked within **top 20** of
U.S. News & World Report
Honor Roll of Best Hospitals



34

Surgeons and Specialists



21

Residents in training

Clinical Training Program

Program Overview

Neurosurgical training at Brigham and Women's/Boston Children's Hospitals/Harvard Medical School is a comprehensive seven-year program designed specifically to prepare each resident for a career in clinical and academic neurosurgery. Neurosurgical training starts during PGY 1 year with rotations in the NICU, neurosciences, pediatrics and fundamental clinical skills training in the surgical sub-specialties of trauma and plastic surgery within general surgery.

The residency training period is a time of collaboration – just as the faculty has set goals for the resident to ensure proper training, the faculty have also set goals to ensure that the program continues to evolve and adapt to changes in resident education. The guidelines and expectations outlined should be viewed as our ongoing attempt to continuously improve the quality of the training and educational experience of the residents.

Research Opportunities

Residents are provided two years dedicated to research, clinical fellowship or in pursuit of an advanced degree. Research opportunities in Boston are abundant and include those at the Brigham and Women's Hospital, Boston Children's Hospital, Massachusetts General Hospital, Dana Farber Cancer Institute, Broad Institute, Wyss Institute, Harvard Medical School, Harvard School of Public Health, Harvard University, and Massachusetts Institute of Technology.

Educational Opportunities

Resident educational opportunities are an integral part of the program. Residents are encouraged to attend neurosurgical courses throughout their training in their chosen sub-specialty. The program encourages and sponsors resident to present their research at neurosurgery grand rounds and at national conferences including the American Association of Neurological Surgeons, the Congress of Neurological Surgeons, and sub-specialty section meetings.

In addition, BWH residents play an important role educating more junior colleagues and mentoring Harvard Medical Students. Residents work closely with the Harvard Medical School and its AANS Chapter to host neurosurgical lectures, teach neuroanatomy, introduce surgical skills and host monthly educational events.

The goal of our program is to train neurosurgical residents to:

1. Develop all necessary clinical and technical skills
2. Competently devise and execute a plan of patient management
3. Be able to critique the neurosurgical literature
4. Add to the growth of the specialty through research and other scholarly activities
5. Become knowledgeable about clinical and basic neurosciences
6. Participate in activities that involve practice-based learning and improvement
7. Understand and practice a high level of professionalism
8. Develop and refine interpersonal and communication skills
9. Understand systems based medical practice and medical socioeconomics

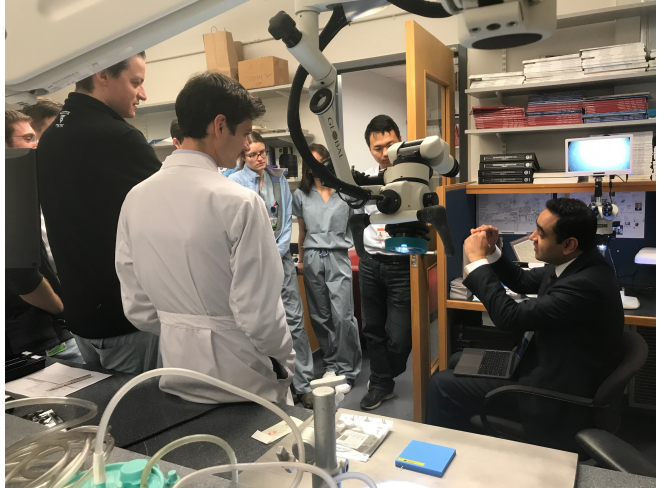
Program Structure

PGY-1 (Intern)

PGY 1s will spend one month on general surgery doing a plastic surgery rotation. The major focus of the rotation is to become competent in the perioperative and operative care of patients with various surgical disorders. (S)he will spend four months on a Critical Care (NICU) rotation. PGY 1s will also spend two months on rotation at BCH, where (s) he shares night-time coverage with rotators from other programs (i.e. BI, MGH, and Tufts). Lastly, PGY 1s will spend four months doing a Nights and Neuroscience rotation focusing on neuroradiology, interventional procedures, and radiosurgery and one month on the Neurosurgery floor service. Residents will be exposed to patients with multiple trauma and head injuries or spinal cord injuries far above and beyond what they currently receive in their NICU rotation.

PGY-2 & PGY-3 (Junior resident)

PGY-2 neurosurgery residents spend ten months on the BWH service and 2 months at BCH. The BWH service is staffed by three residents depending on rotations from the PGY 2 and 3 residents, each of whom is primarily assigned to one of three inpatient services named the Cushing, Dandy, and Penfield services. PGY-3s will spend ten months on neurosurgical service rotations at BWH, with each three to four month rotation emphasizing spinal disorders, neuro-oncology, or cerebrovascular disorders and their surgical treatments. Two months will also be spent on the neurosurgical service at the MGH with an emphasis on peripheral nerve disorders under the supervision of the MGH neurosurgery program director, Dr. Aman Patel.



PGY-4 & PGY-5 (Research resident)

The bulk of this time is spent in the laboratory completing a research project developed and approved in the PGY-3 year. This experience is strongly encouraged to take place in a laboratory at the Brigham and Women's Hospital, Boston Children's Hospital, Dana-Farber Cancer Institute or Harvard Medical School so that they can continue to participate in teaching conferences. PGY-4 residents participate in the call rotation at BWH, which approximates one call per week and an occasional weekend 24-hour shift. PGY-5 residents do not take call except for emergencies on limited weeks (<6) of the year.

“The first day I was here, I got to do a massive brain aneurysm surgery. The chief resident walked me and taught me through the entire surgery.

I got to do more that day than I'd previously done in any day of medical school, including other rotations.”

- Saksham Gupta, PGY-3

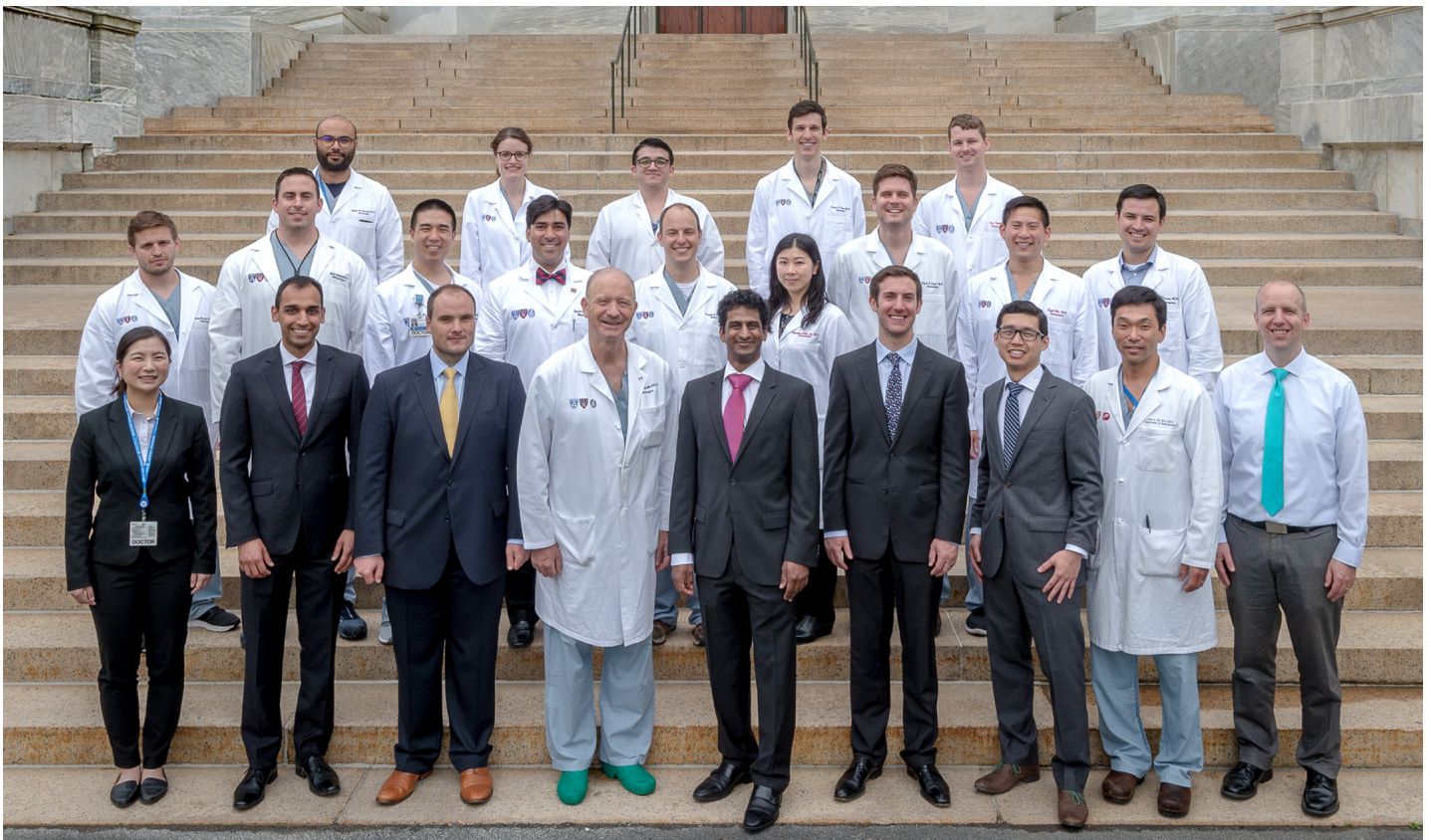


PGY-6 (Senior resident)

PGY6s will spend eight months on neurosurgical service rotations at BWH, emphasizing on spinal disorders, neuro-oncology, or cerebrovascular disorders and their surgical treatments. (S)he will also spend four months as Chief Resident on the Ingraham neurosurgical service rotations at BCH. The senior resident is generally expected to clearly demonstrate the ability to be or become a skilled and capable neurosurgeon, both clinically and technically.

PGY-7 (Chief resident)

The PGY 7 year is spent as Chief Resident and is divided into three 4-month segments, all at BWH. The chief resident also supervises the junior residents, coordinates the entire service including teaching, work rounds, and conferences. He/she must evaluate and manage surgical complications, including organizing and presenting at Morbidity and Mortality (M&M) conferences. The chief resident also has significantly expanded operative experience and he must have passed the ABNS primary examination (written examination) for credit.



Neurosurgery Residents 2021 - 2022

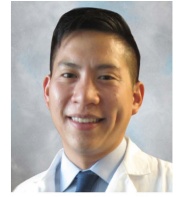
Chief Residents



Yasser Jeelani, M.D.
University of Jammu, India



Rosalind Lai, M.D.
Harvard Medical School



Kyle Wu, M.D.
University of Massachusetts Medical School

PGY-6



Joseph Driver, M.D.
Loyola University, Chicago



Walid Ibn Essayed, M.D.
Medical Faculty of Tunis, Tunisia



David Segar, M.D.
Brown University

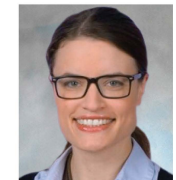
PGY-5



Stanley Bazarek, M.D., Ph.D.
Rosalind Franklin University/Chicago Medical School



Neil Klinger, M.D.
Wayne State University School of Medicine

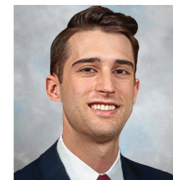


Martina Mustroph, M.D., Ph.D.
University of Illinois, Urbana

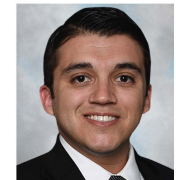
PGY-4



Benjamin Johnston, M.D., Ph.D.
Brown University



Ari Kappel, M.D.
Stony Brook University School of Medicine



Genaro Villa, M.D., Ph.D.
David Geffen School of Medicine, UCLA

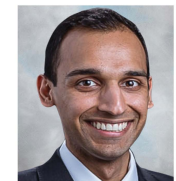
PGY-3



Joshua Bernstock, M.D., Ph.D.
University of Alabama, Birmingham



Melissa Chua, M.D.
Boston University



Saksham Gupta, M.D.
Harvard Medical School

PGY-2



Marcelle Altshuler, M.D.
Georgetown University School of Medicine



Joshua Chalif, M.D., Ph.D.
Columbia University College of Physicians and Surgeons



Jason Chen, M.D., Ph.D.
David Geffen School of Medicine, UCLA

PGY-1



Casey Jarvis, M.D.
Keck School of Medicine, USC



Sean Lyne, M.D.
University of Chicago, The Pritzker School of Medicine



James Tanner McMahon, M.D.
Emory School of Medicine

BWH Neurosurgery Clinical Faculty



Rodolfo Alcedo-Guardia,
MD



Ossama Al-Mefty, MD



Tracy Ansay, MD



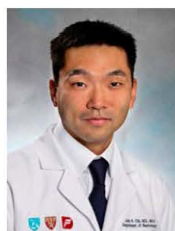
Omar Arnaout, MD



M. Ali Aziz-Sultan,
MD



Wenya Linda Bi,
MD, PhD



John Chi, MD, MPH



E. Antonio Chiocca,
MD, PhD



Marc Christensen,
MD, PhD



Elizabeth Claus,
MD, PhD



G. Rees Cosgrove, MD



Kurtus Dafford, MD



Rose Du, MD, PhD



Kai Frerichs, MD



Alexandra Golby, MD



William Gormley,
MD, MPH, MBA



Michael Groff, MD



Edward Laws, MD



Yi Lu, MD, PhD



Michael Mooney,
MD



Nirav Patel, MD



Pier Paolo Peruzzi,
MD, PhD



Stephen Saris, MD



Danielle Sarno, MD



Timothy Smith,
MD, PhD, MPH



Hasan Zaidi, MD

BCH Neurosurgery Clinical Faculty



Lissa Baird, MD



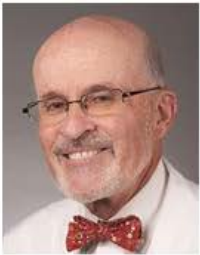
Katie Pricola Fehnel, MD



Joseph R. Madsen, MD



Mark Proctor, MD



R. Michael Scott, MD



Edward Robert Smith, MD



**Scellig S. D. Stone,
MD, PhD, FRCSC**



Benjamin C. Warf, MD



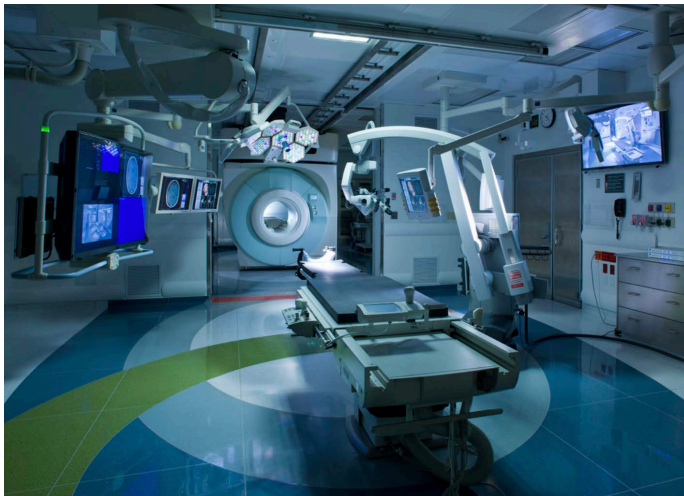
Alfred Pokmeng See, MD

Available Technology

MRI Guided Focused Ultrasound (MRGFUS)

Focused ultrasound treatments can be performed on an outpatient basis, require no incisions, and can result in minimal discomfort and few complications, allowing for rapid recovery. This technology is currently FDA approved for the treatment of essential tremor and is currently being evaluated on its capability to treat parksonian tremor, blood brain barrier, and other neuro conditions via clinical trials here at Brigham and Women's Hospital.

In early 2020, Brigham and Women's Hospital became the first site in the United States to treat 100 patients (outside of a clinical trial) with focused ultrasound (FUS).



Advanced Multimodality Image Guided Operating (AMIGO) Suite

A state-of-the-art medical and surgical research environment that houses a complete array of advanced imaging equipment and interventional surgical systems.

ROSA™ Robotic Surgical Assistant

ROSA™ acts as an assistant in the operating room and provides a service to help navigate and map the brain, similar to a GPS.

It can be used in any type of cranial or spinal procedure that requires surgical planning with preoperative data and precise position and handling of instruments.



Available Technology



O-Arm®

The O-arm® and StealthStation® systems eliminate the need to wear lead protective apparel during the navigated steps of the procedure. The O-arm offers multiple image protocols allowing you the flexibility to minimize dose to your patient based on your individual clinical objectives.



Hybrid OR (operating room)

This system allows our staff to perform high-end diagnostic imaging and multiple surgical or non-surgical interventions for an individual patient without ever leaving the operating room.



7 Tesla (7.0T MRI)

This device aids our clinicians and researchers to visualize critical structures and pathologies that until now were not visible by MRI. Seeing these structures and pathologies will help clinicians differentiate between diseases and conditions in which symptoms may be similar and, in turn, choose the best treatment option for patients.



Interventional Neuroradiology Suite

Endovascular procedures are performed in the angiographic suite rather than the operating room. Fluoroscopy (x-rays), ultrasound (US), compute tomography (CT), and magnetic resonance imaging (MRI) are used to guide their way through the body without making a skin incision.

Weekly conference schedule

Monday

7-7:30 a.m.	Cushing Didactics	BWH
7:30-8:15 a.m.	Neuro-Oncology/Tumor Board Conference	BWH/Dana-Farber

Tuesday

7-8 a.m.	Dandy Service Teaching	BWH
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Wednesday

6:30-7 a.m.	Morbidity/Mortality Conference	BWH (each Wed except 1st)
7-8 a.m.	Combined QI Conference	BWH (1st Wed of each month)
7-8 a.m.	Neurosurgery Grand Rounds	BWH (every Wed except 1st)
8-9 a.m.	Neuroradiology Conference	BWH
4-5 p.m.	Movement Disorder Conference	BWH (1st & 3rd of each month)

Thursday

7-8 a.m.	Cerebrovascular/Endovascular Conference	BWH
7-8 a.m.	Skull Base Conference	BWH (every other Thurs)
9:30-10:30 a.m.	Pituitary Multidisciplinary Conference	BWH (monthly)
10 a.m.-12 p.m.	Resident Clinics (PGY 2 & 3s)	BCH and BWH
12-1 p.m.	Resident Core Curriculum Conference	BWH
1-2 p.m.	Epilepsy Conference	BWH

Friday

7:30-8:30 a.m.	Neuropathology/Brain cutting	BWH
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Weekly conference schedule descriptions

Morbidity And Mortality Conference (Wednesday 6:30-7 a.m.):

This weekly conference includes faculty, residents and fellows. Morbidities and mortalities on the service during the prior week are discussed. This incorporates quality discussions as well as risk avoidance.

Grand Rounds (Wednesday 7-8 a.m.):

This weekly conference is an important teaching tool in medical education by providing residents and faculty with a way to stay up to date on important and ever-evolving areas of Neurosurgery and are held in conjunction with other education conferences.

Neuroradiology Conference (Wednesday 8-9 a.m.):

One-hour weekly case-based presentation of recent neurosurgical cases in conjunction with the neurosurgical and neuroradiological attending staff and visiting professors when present.

Vascular Conference (Thursday 7-8 a.m.):

One-hour weekly case-based presentation of cerebrovascular patients including review of angiograms, vascular anatomy and treatment decision-making.

Skull Base Educational Conference (Thursday 7-8 a.m.):

One-hour weekly conference moderated by a senior skull base neurosurgeon reviewing skull base surgical approaches as well as clinical, pathological and radiographic presentation of many disease processes. Once a month this conference is a multidisciplinary review of several recent cases including radiographic imaging, pathologic imaging, surgical intervention and adjuvant treatment/follow-up care discussions with attending staff from other disciplines (radiology, pathology, neuro-oncology, radiation oncology).

Pituitary/Neuroendocrine Educational Conference (Thursday 9:30-10:30 a.m.):

One hour monthly conference moderated by senior pituitary neurosurgeon reviewing endoscopic and microscopic transsphenoidal surgery approaches as well as clinical, pathological and radiographic presentation of sellar region disease processes. Once a month this conference is a multidisciplinary review of several recent cases including radiographic imaging, pathologic imaging, surgical intervention and adjuvant treatment/follow-up care discussions with attending staff from other disciplines (radiology, pathology, endocrinology).

Weekly conference schedule descriptions

Brain Tumor Conference (Monday 7:30-8:15 a.m.):

This conference is a multi-disciplinary effort (neurosurgery, neuroradiology, neuropathology, radiation oncology and neuro-oncology) that reviews current brain tumor patients that have undergone surgery and discusses course of treatment. It also reviews patients where there are questions related to treatment or diagnosis.

Resident Conference (Thursday 12-1 p.m.):

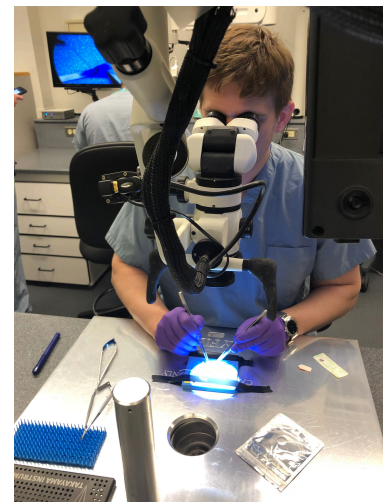
One hour conference reviewing anatomy, surgical approaches and treatment paradigms of various neurosurgical topics using current literature and an interactive format. These conferences are scheduled to complement the summer skull base sessions and other conferences to reinforce concepts and provide additional educational opportunities.

Epilepsy Conference (Thursday 1-2 p.m.):

This is a working weekly multi-disciplinary conference that focuses on the surgical management of a single patient with intractable epilepsy. All relevant presurgical evaluation is discussed including clinical history, neuroimaging, EEG findings and neuropsychology. Treatment options including resective surgery, LITT, neuromodulation and invasive intracranial EEG recordings are discussed among the participants and recommendations are made.

Neuropathology (Friday 7:30-8:30 a.m.):

Twelve one-hour lectures that review a variety of brain, spine and peripheral nerve pathology slides with attending neuropathologists. These conferences are coordinated with resident conferences to discuss the clinical aspects related to the neuropathology topic.



Living in Boston



The City

Boston is one of America's oldest and most revered cities. The largest city in New England, Boston is located at the mouth of the Charles River and the Massachusetts Bay. The area is home to over 50 colleges and universities, and the city's large, diverse, international population is made up of young professionals, students and families. Residents enjoy the city's rich history and abundant cultural activities, including Boston's sports teams, the Boston Symphony orchestra, world class museums and diverse restaurants.

Boston is home to four major league sports teams: the Boston Celtics, Boston Bruins, Boston Red Sox and New England Patriots. The city also hosts the Boston Marathon, the Head of the Charles Regatta, and numerous college and university sports teams.



Brigham and Women's Hospital

Brigham and Women's Hospital is located adjacent to Harvard Medical School in the Longwood Medical Area. Longwood is home to some of the nation's most widely recognized hospitals and healthcare organizations, including Beth Israel/Deaconess Hospital, Boston Children's Hospital, Dana-Farber Cancer Institute, and the Joslin Diabetes Center. There is an abundance of restaurants and take-out food options located nearby for busy hospital staff. The area also houses the Countway Library, one of the country's major medical libraries, a number of colleges, the Museum of Fine Arts, and the Isabella Gardner museum. The area is readily accessible through public transportation.

Living in Boston

Recreation

One major advantage of Boston is the accessibility of wonderful places for day or weekend trips. Cape Cod, the Berkshires, Tanglewood, and the mountains and lakes of New Hampshire, Maine and Vermont are all within a few hours drive. Residents engage in activities including: organized sports, hiking, jogging, sailing, and biking throughout the city. Skiing and snowboarding are available after a short drive to local ski resorts.



Living in Boston

Residents choose to live in a variety of communities in and around Boston. Current residents live in a wide variety of locations including: apartments immediately surrounding the hospital, Brookline, Jamaica Plain, Fenway, Mission Hill, Back Bay, South End, Downtown Boston or more distant suburbs. Because of the number of students in the area, apartments often have a high turnover rate and residents rarely have trouble finding housing that works for them.



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bwhneurosurgery@partners.org

<https://www.brighamandwomens.org/neurosurgery/residency-program>



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