

## **CAST Certified Fellowship Program in Neurosurgical Oncology**

### **Director:**

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### **Neurosurgery faculty:**

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### **Neuro-oncology faculty**

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Eric T. Wong, MD

### **Neuropathology faculty**

John E. Donahue, MD

Michael Punsoni, MD

Harry Rosenberg, MD

### **Neuroradiology faculty**

Jerrold L. Boxerman, MD PhD FACR

Duncan Davidson, MD

Mahesh Jayaraman, MD FACR

### **Radiation oncology faculty**

Brijal M. Desai, MD

Andrew Kopecky, MD

Esther Yu, MD

## **Overview**

The Brown University Health Department of Neurosurgery at Rhode Island Hospital offers a one-year subspecialty fellowship in Neurosurgical Oncology. The Brown University Health Department of Neurosurgery is a recognized high-volume brain tumor center (with 250-300 brain tumor procedures yearly) with national and internationally recognized surgical expertise. The fellow will work within a multi-disciplinary team of brain tumor-focused neurosurgeons, neuro-oncologists, medical oncologists, radiation oncologists, neuro-radiologists, neuro-pathologists, and oncology-focused psychiatrists to learn from these specialists. The fellowship is accredited by the Committee on Advanced Subspecialty Training (CAST). Neurosurgeons accepted into the program are appointed junior faculty with the full spectrum of surgical and clinical privileges in the neurosurgery department. This appointment offers the fellow to practice

independently, while learning from the input of the faculty members. Fellows are expected to provide the full spectrum of care, from diagnosis, to surgery, to post-operative care.

### **Goals and Objectives:**

The goals of this brain tumor-focused neuro-oncology fellowship are to provide the trainee an opportunity to:

- 1) Acquire the requisite skills and knowledge for the diagnosis and treatment of oncologic conditions that affect the brain as well as neurological complications of cancer
- 2) Enhance the skills acquired during residency and develop expert-level proficiency in the surgical treatment of brain tumors
- 3) Gain knowledge, skill, and experience that would facilitate participation in research and advance the field of neurosurgical oncology
- 4) Learn the basic tenets of neuro-oncology, radiation oncology, neuropathology, and neuroradiology, which would prepare the fellows to work effectively within a multidisciplinary team to deliver optimal brain tumor care.

### **Surgical experience**

The fellowship is designed to provide a breadth and depth of surgical experience, emphasizing hands-on and real-world learning and building on knowledge acquired during neurosurgery residency. The fellow will gain exposure to the full spectrum of neuro-oncologic surgeries, including stereotactic radiosurgery (Drs. Chen, Cielo, Svokos), skull-base surgery (Drs. Doberstein, Lee), minimally invasive neurosurgery (Drs. Chen, Malik, Lee), neuro-endoscopy (Dr. Doberstein, Cielo, Lee, Sampath), pediatric brain tumor surgery (Dr. Svokos), laser thermal ablation (Drs. Chen, Malik), robotic cranial surgery (Drs. Chen, Malik, Sampath), peripheral nerve tumor surgery (Dr. Cielo), pituitary surgery (Drs. Lee, Doberstein), epilepsy tumor surgery (Dr. Malik), tumor surgery with motor and speech mapping (Dr. Chen, Malik), Clearpoint MRI-guided surgery (Drs. Chen, Malik), High intensity focused ultrasound (Drs. Chen, Malik) and GammaTile brachytherapy (Dr. Chen). The program ensures the fellow develops an expert proficiency in the diagnosis, surgical treatment, and postoperative management of brain tumor patients, paving a path toward a career in neurosurgical oncology.

### **Multi-disciplinary learning**

Neuro-oncologic surgery cannot be practiced without understanding the fundamental tenets of other associated disciplines, including neuro-oncology, radiation oncology, neuroradiology, and neuropathology. Unfortunately, little time during neurosurgery residency is typically dedicated to these learnings. To adequately prepare for a career in neurosurgical oncology, the fellow will have dedicated time to shadow and learn from our neuro-oncologists (Drs. Eric Wong, Sasmit Sarangi, and Heinrich Elinzano), brain-tumor-focused radiation oncologists (Drs. Brijal M Desai, Andrew Kopecky, and Esther Yu), neuro-radiology (Drs. Jerrold Boxerman, Mahesh Jayaraman, and Duncan Davidson). That said, the primary focus of the fellowship is surgical. As routine clinical workflow, the fellow will review the patients they manage with the pertinent specialists, working closely with the multidisciplinary team. The fellow is expected to participate in the multi-disciplinary brain tumor clinics (attended by members of the neurosurgery, neuro-oncology, and radiation oncology team) and the various multi-disciplinary conferences described under the curriculum and conferences section. Members of the neurosurgery, neuro-oncology, radiation oncology, neuroradiology, and neuropathology teams attend these conferences.

### **Translational Research**

Given the many gaps in knowledge in our current brain tumor care, we believe that scholarly efforts to address these gaps are an essential component of a career in neuro-oncologic neurosurgery. To prepare for this life-long journey, we require our fellow to be involved in at least one translational neuro-oncologic study – with the goal of endowing skill sets that would facilitate lifelong contributions to the advancement of neurosurgical oncology. Our brain tumor team hosts a broad spectrum of research, including clinical studies, bioinformatic/biostatistics, artificial intelligence, computational modeling, laboratory research, and health policy. The neurosurgical faculty members meet monthly to review and discuss research. The weekly brain tumor conferences include time dedicated to interdisciplinary research. The comprehensive brain tumor center hosts monthly meetings to facilitate the engagement of clinicians and laboratory/computational scientists. We encourage our fellow employees to take advantage of these opportunities.

### **Curriculum and Conferences**

A core mission of the Brown University Health Department of Neurosurgery is to educate and train the next generation of neurosurgical leaders. To this end, the department hosts regular seminars, case discussions, and conferences, including morbidity and mortality conferences, neurosurgery grand rounds, weekly brain tumor surgery conferences, weekly multidisciplinary intrinsic brain tumor conferences, weekly pediatric brain tumor conferences, bi-weekly skull base conferences, and quarterly pituitary conferences.

Fellows are expected to attend and actively participate in these conferences.

### **Clinical practice and patient care**

All brain tumor surgeries and patient care are carried out at the Rhode Island Hospital. There are no clinical duties outside of these responsibilities. The procedures are carried out in state-of-the-art operating rooms or procedural MRIs. There will be operating room time dedicated to the brain tumor fellow. For post-operative care, a neuro-intensive care unit is staffed by dedicated neuro-intensivists and supported by neurology/neurosurgery residents and advanced practice providers (APPs). Dedicated APPs or neurosurgery residents support the fellows for the floor patients. The fellow will be expected to function as a faculty and teach the residents, the APPs, and the nursing staff. The fellow is further encouraged to engage the residents in scholarly work. Neuro-oncology, neuroradiology, and neuropathology faculty are available for consultation in terms of patient care or research matters.

### **Evaluations**

Informal constructive feedback will be provided to the fellow in real-time in terms of the state of knowledge, clinical competency, and professional attitudes. Formally, all fellowship faculty will provide a written evaluation of the fellow every quarter. The fellowship director will collate these assessments and review them with the fellow. The fellow will also be asked to evaluate the faculty members during these sessions. A final evaluation will be provided at the end of the experience based on assessments collated throughout the year and ACGME core competencies. A formally written evaluation of the experience will be requested of the fellow after completion of the fellowship.