

**University of California, San Francisco,
Department of Radiation Oncology
Residency Training Program
Neuro-Oncology Educational Objectives for PGY-4 Residents
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Patient Care

Manage and prescribe medications in a careful and thoughtful way to patients undergoing radiation therapy, with emphasis on appropriate use of steroids and the management of cerebral edema

Medical Knowledge

PGY-4 Resident Goals (in addition to achievement of PGY-2 and PGY-3 Resident Goals):

- Improve detailed knowledge of neuroanatomy
- Improve the neurological examination to detect subtle cognitive and sensory deficits
- Know details regarding the half-life, type of emission, energies of emissions, and shielding (Half Value Layers) of commonly used radioisotopes (Cobalt-60, Iodine-125)
- Become more proficient in specific radiotherapy techniques to be practiced: Gamma Knife radiosurgery, 3D conformal radiotherapy, and to a lesser extent, Cyberknife radiosurgery, intensity modulated radiotherapy, and CNS brachytherapy. The Senior resident should possess a literature supported understanding of the relative indications of each of these modalities, and a practical knowledge of how each of these radiotherapy techniques are performed.
- Specific Technical Goals: For all radiotherapy approaches, target definition, critical structure delineation and dose constraints (specific to various fractionation schedules and to low vs. high grade gliomas, benign tumors, and brain metastases), expected dose distributions and methods of correcting suboptimal dose distributions, prescription techniques.
- The senior resident should be fluent in the reading of dose volume histograms (DVH) and be able to accurately use the DVH to assess risks to normal structures
- Acute and late toxicities to normal structures, radionecrosis, and their management
- -The PGY-4 resident should effectively integrate his/her clinical assessment of the patient, knowledge of radiotherapy techniques, and medical literature to develop and execute a treatment plan managing patients with neurooncologic issues.

Practice-Based Learning and Improvement

Demonstrate the ability to use information technology to improve fund of knowledge and improve patient care

Interpersonal and Communication Skills

- Communicate effectively with medical staff
- Demonstrate compassionate and clear communication with patients from different cultures
- Maintain comprehensive, timely, and legible medical records

Professionalism

- Demonstrate sensitivity and responsiveness to patients' culture, age, gender and disabilities
- Demonstrate commitment to ethical principles regarding provision or withholding of medical care, patient confidentiality, and informed consent

Systems-Based Practice

- Understand how their patient care affects other health professionals, the health care organization, and the larger society and how these elements of the system affect their own practice
- Know how to coordinate with health care managers and health care providers to improve care