

**Online Gamma Knife Training Program,   
January 9-13, 2023**

Center For Image Guided Neurosurgery, University of Pittsburgh Medical Center, Presbyterian Hospital

**Course Director: L. Dade Lunsford, M.D.**

**Course Co-Directors: Ajay Niranjan, MD, MBA,   
John C. Flickinger, MD**

**Course Manager: Kelly C. Powell**

**Physician Faculty Technical Suport**

L. Dade Lunsford, MD (LDL) Susan E. Lohman, RN, CNOR (SL)

John C. Flickinger, MD (JCF)

Ajay Niranjan, M.D., MBA (AN) Andy Lunsford (AL)

**Medical Physics** **Nursing Instructors**

Greg Bednarz, Ph.D. (GB) Jonet Vacsulka, RN, BSN

Jong Kim, Ph.D. (JK) Devorah Willaman, RN

Mark Geminetti, RN

**Mailing Address**

Kelly Powell- Suite F188

200 Lothrop Street

Pittsburgh, PA 15213

Phone 412-647-7744

FAX 412.647-8447

**Target Audience**

This 4-day course (with opportunity for additional dose planning on day 5) online course is directed to neurosurgeons, neurootologists, radiation oncologists, medical physicists, nurses and other medical providers who are or will be working with a Perfexion or ICON Gamma Knife® radiosurgery unit. Days 1-4 will consist of Power Point didactic presentations and video presentations. Dose planning practice will be done by demonstrations.

**Disclaimer Statement**

“The information presented at this CME program represents the views and opinions of the individual presenters, and does not constitute the opinion or endorsement of, or promotion by, the UPMC Center for Continuing Education in the Health Sciences, UPMC / University of Pittsburgh Medical Center or Affiliates and the University Of Pittsburgh School Of Medicine. Reasonable efforts have been taken intending for educational subject matter to be presented in a balanced, unbiased fashion and in compliance with regulatory requirements. However, each program attendee must always use his/her own personal and professional judgment when considering further application of this information, particularly as it may relate to patient diagnostic or treatment decisions including, without limitation, FDA-approved uses and any off-label uses.”

I understand that satisfactory completion of this course does not imply or confirm competency to perform gamma knife stereotactic radiosurgery.

**Online Gamma Knife® Radiosurgery Training Program**

Through attendance at this program, registrants should obtain knowledge about the practical aspects and outcomes of stereotactic radiosurgery using the Leksell Gamma Knife®. The course provides training related to the Perfexion and ICON Gamma Knife models (3-day online course) for health care providers who have not previously performed Gamma Knife Radiosurgery or who are upgrading their Perfexion Gamma Knife to the ICON model. Principles of medical physics and radiobiology, as they apply to single or multi-session, focused, small volume irradiation of cranial and selected head and neck targets will be covered. Using current remote learning techniques registrants will observe the science and art of radiosurgery dose planning for brain tumors, vascular malformations, trigeminal neuralgia and movement disorders. At the close of the program, participants should be able to discuss those issues relevant to dose selection in individual patients and discuss the spectrum of complications after radiosurgery and their management. Registrants should be familiar with patient safety, radiation safety requirements and emergency procedures for the use of these Gamma Knife technologies.

**Continuing Medical Education Credits**

**Accreditation and credit designation**

In support of improving patient care, the University of Pittsburgh is jointly accredited by the Accreditation Council for Continuing Medical Education (ACCME), the Accreditation Council for Pharmacy Education (ACPE), and the American Nurses Credentialing Center (ANCC), to provide continuing education for the healthcare team.

**Physician (CME)**

The University of Pittsburgh School designates this live activity for a maximum of 50.50 AMA PRA Category 1 Credits™. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

**Other Healthcare Professionals**

Other health care professionals will receive a certificate of attendance confirming the number of contact hours commensurate with the extent of participation in this activity.

The American Association of Neurological Surgeons attests that this educational activity has been recognized for co-sponsored/endorsement for 50.5 Category I CME credits of the American Association of Neurological Surgeon’s Continuing Education Award in Neurosurgery

Medical Physics attendees can apply for credits for 34.5 hours educational credits via CAMPEP.

**Faculty Disclosure**

Faculty for this activity have been required to disclose all relationships with any proprietary entity producing health care goods or services, with the exemption of non-profit or government organizations and non-health care related companies.

**The following relevant financial relationships were disclosed:**

Dr. Lunsford is a stockholder in AB Elekta, Stockholm, Sweden and serves on the DSMB of Insightec, makers of focused ultrasound equipment.

Ajay Niranjan, MD, MBA Consultant IRRF

Susan E. Lohman, RN, CNOR Employee Elekta Instruments, Inc.

Andrew Lunsford Employee Elekta Instruments, Inc.

No significant financial relationships with commercial entities were disclosed by:

Michael Sheetz, M.S.

Greg Bednarz, Ph.D.

Jonet Vacsulka, RN, BSN

John C. Flickinger, M.D.

Jong Kim, Ph.D.

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| **Online GAMMA KNIFE® RADIOSURGERY**  **TRAINING PROGRAM SYLLABUS** | | |
| **Day 1: Introduction to the Gamma Knife Technologies** | |  |
| **Presentations** | | **Estimated Learning Time (Minutes)** |
| Kick-off Meeting (Zoom): Overview of the course | | 60 |
| 1.01 Lecture: Welcome and Introduction to the Course | | 30 |
| 1.02 Lecture: Fundamentals of the LGK SRS Procedure | | 30 |
| 1.03 Demonstration of the LGP Planning Software | | 30 |
| 1.04 Demonstration LGK Equipment | | 30 |
| 1.05 Lecture: Stereotactic Targeting and Imaging | | 30 |
| 1.06 Lecture: Physics and Technology Overview | | 90 |
| 1.07 Hands on Function and Hardware of the Gamma Knife® Units Part 1 | | 45 |
| 1.08 Hands on Function and Hardware of the Gamma Knife® Units Part 2 | | 45 |
| 1.09 Physics QA and Calibrations | | 45 |
| 1.10 Case Selection and Follow-up of GK Patients (Conference): | | 60 |
| 1.11 Lecture: Radiobiology | | 90 |
| 1.12 Question-Answer Session | | 60 |

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| **Online GAMMA KNIFE® RADIOSURGERY**  **TRAINING PROGRAM SYLLABUS** | | |
| **Day 2: Clinical Radiosurgery - Part 1** | |  |
| **Presentations** | | **Estimated Learning Time (Minutes)** |
| 2.01 Frame based SRS Part 1: Frame construction | | 30 |
| 2.02 Frame based SRS Part 2: Frame application, treatment and removal | | 45 |
| 2.03 Hands on Instructions-Daily Quality Assurance | | 30 |
| 2.04 Introduction to LGK Dose Planning Part 1 | | 45 |
| 2.05 Introduction to LGK Dose Planning video Part 2 | | 60 |
| 2.06 Lecture: ICON Introduction | | 60 |
| 2.07 Hands on Instructions-ICON Upgrade Training Dose Planning | | 60 |
| 2.08 Lecture: Brain Metastases | | 60 |
| 2.09 Lecture: Schwannomas | | 45 |
| 2.10 Lecture: Radiation Related Tumors | | 30 |
| 2.11 Hands on Instructions-Physics QA and Calibrations 2 | | 45 |
| 2.12 Hands on Instructions-Advanced Dose Plan Practice 1 | | 45 |
| 2.13 Hands on Instructions-Advanced Dose Plan Practice 2 | | 45 |
| 2.14 Hands on Instructions-ICON: Cone Beam | | 60 |
| 2.15 Lecture: Trigeminal Neuralgia | | 60 |
| 2.16 Lecture: Pituitary Tumors and Craniopharyngiomas | | 60 |
| 2.16 Lecture: Pituitary Tumors and Craniopharyngiomas | | 60 |
| 2.17 Hands on Instructions-Dose Planning Practice- hands on instruction | | 120 |
| 2.18 Question-Answer Session | | 60 |

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| **Online GAMMA KNIFE® RADIOSURGERY**  **TRAINING PROGRAM SYLLABUS** | |
| **Day 3: Clinical Radiosurgery - Part 2** | |  | |
| **Presentations** | | **Estimated Learning Time (Minutes)** | |
| 3.01 GK SRS: An ICON Mask Case | | 30 | |
| 3.02 Hands on Instructions-Advanced Dose Planning 3: Additional | | 30 | |
| 3.03 Hands on Instructions-Advanced Dose Planning 4: Administration | | 30 | |
| 3.04 Lecture: AVM Radiosurgery | | 60 | |
| 3.05 Lecture: Meningioma Radiosurgery | | 45 | |
| 3.06 Lecture: Rare Tumors | | 45 | |
| 3.07 Lecture: Cavernous Malformations | | 45 | |
| 3.08 Lecture: Spine Radiosurgery | | 45 | |
| 3.09 Hands on Instructions-LGK ICON/ PFX Procedures and Safety Tips | | 60 | |
| 3.10 Hands on Instructions-ICON Workflow | | 75 | |
| 3.10 Test Case-Dose Planning (Forward) | | 45 | |
| 3.11 Test Case-Dose Planning (Inverse) | | 45 | |
| 3.12 Hands on Instructions-Dose Planning Practice | | 120 | |
| 3.13 Question-Answer Session | | 60 | |

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| **Online GAMMA KNIFE® RADIOSURGERY**  **TRAINING PROGRAM SYLLABUS** | | |
| **Day 4: Clinical Radiosurgery - Part 3** | |  |
| **Presentations** | | **Estimated Learning Time (Minutes)** |
| 4.01 A PFX Case: Wheels- in to Wheels- Out | | 60 |
| 4.02 Lecture: Gliomas | | 60 |
| 4.03 Lecture: Patient Preparation, Teaching, Coding | | 30 |
| 4.04 Lecture: Functional Radiosurgery | | 30 |
| 4.05 Lecture: Requirements of the Nuclear Regulatory Commission | | 60 |
| 4.06 Lecture: Dose Selection & Informed Consent | | 90 |
| 4.07 Lecture-Anesthesia for Pediatric Gamma Knife Surgery | | 30 |
| 4.08 Lecture: Conclusions of the Course | | 30 |
| 4.09 Hands on Instructions: Dose planning practice | | 120 |
| 4.10 Question-Answer Session | | 60 |