

# **Nuclear Medicine Residency Program**

University of Washington  
School of Medicine  
Department of Radiology  
Seattle, Washington

## Introduction

The Nuclear Medicine Division at the University of Washington was established in 1962 and has had a postdoctoral training program since its inception. It is part of the Department of Radiology within the School of Medicine.

The current one-, two- or three-year residency program is designed in compliance with, and is approved by, the Accreditation Council on Graduate Medical Education. This program provides a balanced and in-depth experience in all aspects of the basic science and clinical training of nuclear medicine. The program is approved for six (6) full time residents. Applicants may be board eligible in another specialty, or have completed at least one or two years in other specialty training. The one-year program is available for diagnostic radiologists who wish to pursue special competence in Nuclear Radiology from the American Board of Radiology (ABR) or receive American Board of Nuclear Medicine (ABNM) Certification.

Joint arrangements with other departments for coordinated training are available. A one-year PET/CT Fellowship with emphasis in cancer imaging is also offered to qualified applicants. Applicants to the PET/CT Fellowship must have successfully completed a residency program in nuclear medicine for application eligibility.

## Residency Program Outline

The nuclear medicine residency is designed to provide fundamental training in the following areas:

- Physics of nuclear medicine
- Nuclear medicine instrumentation
- Mathematics and statistics of nuclear medicine
- Computer sciences
- Nuclear pharmacy
- Radiation safety and protection

- Dynamic and static imaging
- Metabolic tracer studies
- Absorption and distribution kinetics
- Radionuclide therapy
- Laboratory quality control
- Regulatory aspects of nuclear medicine

- Diagnostic nuclear medicine
- Cross-sectional imaging
- Hybrid imaging (PET/CT, SPECT/CT) and correlative imaging

The first year emphasizes clinical training in the affiliated hospitals. A series of basic science lectures, Journal Club, Reading Club, and weekly clinical conferences are a part of the Nuclear Medicine program throughout all years of training. There is laboratory experience in

nuclear pharmacy and instrumentation. An interactive test is given at the end of the introductory course.

The second and third years provide opportunities for further in-depth clinical training. This allows for specialized clinical training, such as cardiac nuclear medicine, neuroimaging, oncologic imaging, or pediatric nuclear medicine. Nuclear medicine residents receive in-depth training in CT cross-sectional imaging, PET and SPECT imaging, and in integrating the information provided by hybrid imaging systems (PET/CT, SPECT/CT) together with other relevant clinical data. This is particularly emphasized for oncologic imaging.

In collaboration with the Division of Endocrinology, the Division of Nuclear Medicine participates in the care of a large number of patients with a variety of thyroid diseases. Additionally, the Division of Nuclear Medicine participates in the care of osteoporosis patients in collaboration with Gerontology. Residents are expected to become involved in special divisional clinical or research projects upon entering the program. Research time is incorporated in several of the clinical rotation modules. Opportunity for extended experience in specialized study or research during or beyond the second year is available on an individual basis and is encouraged for physicians entering academic or research careers.

## Clinical Facilities

The Nuclear Medicine Division involves six centers affiliated with the medical school, each with its own clinical nuclear medicine service: University of Washington Medical Center (UWMC), Harborview Medical Center (HMC), VA Puget Sound Health Care System (VAPSHCS), Swedish Medical Center (Swedish), Seattle Children's Hospital, and the Seattle Cancer Care Alliance (SCCA). The administrative offices for the academic program are located at UWMC.

Each nuclear medicine service has a well-equipped diagnostic clinic that includes gamma cameras, single-photon computed tomography (SPECT), and on-line computers dedicated to nuclear medicine. More than 12,000 in vivo diagnostic procedures are performed annually. There are active clinical PET/CT services at UWMC, HMC, SCCA, and CHRMC.

## Research Facilities

There is opportunity for research during all portions of the training program. UWMC has a well-equipped animal laboratory, excellent facilities for radiochemical and radiopharmaceutical research, and a large instrumentation development and imaging research laboratory. There is a cyclotron at UWMC and a radioisotope production facility used for the positron emission tomography (PET) program.

Specific research programs in nuclear medicine include radionuclide evaluation of cardiovascular disease, radio-pharmaceutical development, PET studies of tumor biology, radiolabeled monoclonal antibody imaging and therapy of hematologic tumors, brain imaging, biokinetic modeling, and software design.

An active nuclear medicine physics group has research projects in camera detector design, camera electronics, image reconstruction algorithms, and image quality assessment.

## Faculty

The Division of Nuclear Medicine includes 12 physician scientist faculty and seven basic science faculty. Two additional nuclear medicine physicians provide teaching on a part-time basis. There are several additional basic scientists affiliated with the program who provide teaching and research opportunities.

ADAM ALESSIO, Ph.D., Research Associate Professor, Radiology; Adjunct Research Associate Professor of Biomedical Engineering and Mechanical Engineering

FATEMEH BEHNIA, M.D., Acting Assistant Professor of Radiology, Division of Nuclear Medicine

JAMES CALDWELL, M.D., Professor of Medicine (Cardiology) and Radiology; Adjunct Professor of Bioengineering; Director of Nuclear Cardiology

JANET F. EARY, M.D., Professor of Radiology; Professor of Orthopedics, Adjunct Professor of Pathology, Radioisotope Therapy, PET Oncology Research; Director of Research, Department of Orthopedics, Children's Hospital and Medical Center

PAUL E. KINAHAN, Ph.D., Professor of Radiology; Head, Imaging Research Laboratory; Adjunct Professor, Bioengineering, Electrical Engineering, and Physics

KENNETH A. KROHN, Ph.D., Professor of Radiology and Radiation Oncology; Associate Program Director, Cancer Imaging Program; Adjunct Professor of Chemistry

THOMAS K. LEWELLEN, Ph.D., Professor Emeritus of Radiology, Physics and Instrumentation Development

DAVID H. LEWIS, M.D., Professor of Radiology; Director of Nuclear Medicine, Harborview Medical Center, Brain Imaging; Program Director, Nuclear Medicine Residency Training Program

JEANNE LINK, Ph.D., Associate Professor, Radiology; Adjunct Associate Professor of Pharmaceutics

LARRY MacDONALD, Ph.D., Research Assistant Professor, Radiology; PET/CT and Nuclear Medicine Physics, SCCA

SATOSHI MINOSHIMA, M.D., Ph.D., Wil B. Nelp Endowed Professor of Radiation and Vice Chair for Research; Director, Neuroimaging and Biotechnology Laboratory, Department of Radiology; Adjunct Professor, Department of Bioengineering, Brain Imaging, Neurosciences

ROBERT S. MIYAOKA, Ph.D., Research Professor, Radiology; Director of Small Animal PET Imaging; Director of SPECT/CT Physics; Adjunct Research Professor, Department of Electrical Engineering

MARGUERITE T. PARISI, M.D., M.S., Professor of Radiology, Adjunct Professor of Pediatrics; Division Chief Ultrasound, Seattle Children's Hospital

JOSEPH G. RAJENDRAN, M.D., DMRT, FASNC, FACNM; Professor of Radiology and Radiation Oncology (Adjunct), Division of Nuclear Medicine

LAURIE SOINE, ARNP, Ph.D., Teaching Associate, Division of Nuclear Medicine and Division of Cardiology; Clinical Assistant Professor, Department of Biobehavioral Nursing and Health Systems in the School of Nursing

HUBERT VESSELLE, Ph.D., M.D., Professor of Radiology; Adjunct Professor, Bioengineering; Director of the Division of Nuclear Medicine, Department of Radiology, UWMC; Director, PET/CT Fellowship Program

## General Information

Residents are evaluated monthly by the attending physicians at the institution of rotation. The evaluations are based on both clinical activity and understanding of the basic sciences. In addition, the residents will meet semi-annually with the program director.

Salary information for residents is available upon request. Residents are eligible for a variety of University benefits, including health and life insurance. Each resident is entitled to three weeks paid vacation annually.

The University of Washington provides equal opportunity in education without regard to race, color, creed, religion, national origin, sex, sexual orientation, age, marital status, disability, or status as a disabled veteran or Vietnam era veteran in accordance with University of Washington policy and applicable federal and state statutes and regulations.

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## **How to Apply to the University of Washington Nuclear Medicine Residency Program**

Applicant must have completed a minimum of two years of postdoctoral training in the United States prior to nuclear medicine training. Post graduate training has to have provided broad experience in Clinical Medicine. Individuals with additional training are encouraged to apply.

To apply, please complete the attached application form and return pages 5 and 6, along with supporting documentation requested to:

David H. Lewis, M.D., Director of Nuclear Medicine Residency Program  
University of Washington Medical Center  
1959 N.E. Pacific St., Box 356113  
Seattle, WA 98195-6113.

Please answer all questions carefully. When you select your references, please inform them of that fact and ask them to write to us directly at the time your application is submitted.

If you need further assistance, please contact NM administration at: [nmadmin@u.washington.edu](mailto:nmadmin@u.washington.edu)

Requested documentation:

- UWNM Resident Application (pages 5 and 6, completed)
- CV
- Copy of USMLE Score Reports
  - Step 1
  - Step 2 – Clinical Skills (CS)
  - Step 2 – Clinical Knowledge (CK)
  - Step 3
- Medical School Transcript(s)
- Dean's Letter from Medical School graduated
- Letters of reference – minimum of 3 (mail original letters directly to the University of Washington Nuclear Medicine Program Director)
- Personal Statement

For International Medical Graduates, also include:

- Copy of ECFMG
- Copy of Visa

**Application for University of Washington Nuclear Medicine Residency Training**

**INSTRUCTIONS**

The completed form should be returned to David Lewis, M.D., Division of Nuclear Medicine, University of Washington Medical Center, 1959 N.E. Pacific St., Box 356113, Seattle, WA 98195-6113.

TYPE OF APPLICATION: Residency  1 year  2 year  3 year program

Date \_\_\_\_\_ Date you wish to begin training \_\_\_\_\_

Full name \_\_\_\_\_

Date of birth \_\_\_\_\_

Citizenship \_\_\_\_\_

Business address \_\_\_\_\_ Phone \_\_\_\_\_

Home address \_\_\_\_\_ Phone \_\_\_\_\_

**PREMEDICAL EDUCATION**

College \_\_\_\_\_ Address \_\_\_\_\_ Date: From-To \_\_\_\_\_ Degree \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**MEDICAL EDUCATION**

College \_\_\_\_\_ Address \_\_\_\_\_ Date: From-To \_\_\_\_\_ Degree \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**INTERNSHIPS, RESIDENCIES, AND FELLOWSHIPS**

Position \_\_\_\_\_ City \_\_\_\_\_ Institution \_\_\_\_\_ Type of service \_\_\_\_\_ Date From-To \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

USMLE Step 1: \_\_\_\_\_ / \_\_\_\_\_ Step 2 CK: \_\_\_\_\_ / \_\_\_\_\_ Step 2 CS: Pass / Fail Step 3: \_\_\_\_\_ / \_\_\_\_\_

ARE YOU LICENSED TO PRACTICE MEDICINE? \_\_\_\_\_ Where? \_\_\_\_\_

MILITARY SERVICE AND PRESENT STATUS \_\_\_\_\_

Board Eligibility \_\_\_\_\_

• ECFMG status or other qualifications \_\_\_\_\_

• Visa type \_\_\_\_\_ Visa number \_\_\_\_\_ Visa expiration \_\_\_\_\_

HONORS, SCHOLARSHIPS, GRANTS \_\_\_\_\_

MEMBERSHIP IN PROFESSIONAL SOCIETIES \_\_\_\_\_

PUBLICATIONS \_\_\_\_\_

SPECIAL TRAINING AND INTERESTS

- Have you had any special training or experience in the basic science or clinical aspects of nuclear medicine? If so, please describe \_\_\_\_\_

YES answers to the following questions require a written explanation on a separate sheet (positive responses to questions do not necessarily preclude acceptance).

Have you ever been involved in a malpractice lawsuit or claim (whether or not you were individually named as a defendant)? Yes No

Have you ever been called before any entity for questioning concerning unprofessional conduct, incompetence, negligence, unsafe practices, or mental or physical impairment? Yes No

If you have been licensed to practice medicine, has any such license, or application for it, ever been denied, revoked, suspended, or restricted? Yes No

Have you ever been addicted to, or treated for addiction to, a controlled substance, drug, or chemical? Yes No

Have you ever used a prescription drug, including controlled substances, for other than therapeutic purposes? Yes No

Are you currently suffering from any disability or illness (mental or physical) that could affect your ability to fully practice medicine? Yes No

- **On a separate sheet write a note listing your reasons for selecting nuclear medicine, your long-range objectives in nuclear medicine, and the amount and type of training you desire.**

- Where do you contemplate locating after your training?

- Upon completion of the program, you intend to receive:

ABNM certification by examination

ABR Nuclear Radiology Special Competency by examination

REFERENCES

- Please ask the dean of the medical school from which you graduated to send a letter of characterization, including your rank in your graduating class (Dean's letter).

- List a minimum of three additional references. Include the director of your internship or residency program (please contact them and ask each to write a letter of reference at this time).

Name	Title	Address

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date