

**Curriculum Vitae**  
**Henry Duval Royal, M.D.**  
July 27 2023

**1. Personal Information:**

- a. Sex: Male
- b. Place of birth: Connecticut

**2. Citizenship: USA**

**3. Address**

Division of Nuclear Medicine  
Mallinckrodt Institute of Radiology  
510 S. Kingshighway Blvd.  
St. Louis, MO 63110-1076  
314-362-2809  
Fax: 314 362-2806  
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**4. Present Position:**

Associate Director, Division of Nuclear Medicine  
Mallinckrodt Institute of Radiology  
Professor of Radiology  
Washington University School of Medicine

**5. Education:**

- a. Undergraduate: 1970 B.S., Biology, Providence College
- b. Graduate: 1974 M.D., St. Louis University
- c. Postgraduate: 1974-77 Internal Medicine Residency, Rhode Island Hospital, Brown University, Providence, RI
- 1977-79 Nuclear Medicine Residency, Joint Program in Nuclear Medicine, Harvard Medical School, Boston, MA

**6. Academic Positions/Employment:**

- 1979-82 Instructor in Radiology, Harvard Medical School, Boston, MA
- 1982-86 Assistant Professor in Radiology, Harvard Medical School, Boston, MA
- 1986 Associate Professor in Radiology, Harvard Medical School, Boston, MA
- 1987-93 Associate Professor in Radiology, Washington University School of Medicine, St. Louis, MO
- 1993- Professor in Radiology, Washington University School of Medicine, St. Louis, MO

**7. University and Hospital Appointments and Committees:**

- 1979-86 Assistant Radiologist (Nuclear Medicine), Beth Israel Hospital, Boston, MA
- 1979-86 Associate in Radiology (Nuclear Medicine), Peter Bent Brigham Hospital, Boston, MA
- 1980-86 Deputy Director of Residency Training, Joint Program in Nuclear Medicine, Harvard Medical School, Boston, MA
- 1982 Staff Specialist, Division of Nuclear Medicine, Royal Prince Alfred Hospital, Sydney, Australia
- 1983-86 Nuclear Medicine Consultant, West Roxbury VA Medical Center, Boston, MA
- 1985 Visiting Professor, Rambaum Hospital, Haifa, Israel
- 1987- Associate Director of Nuclear Medicine, Mallinckrodt Institute of Radiology, St. Louis, MO
- 1987- Associate Radiologist, Barnes Hospital, St. Louis, MO
- 1987- Consulting Staff, Children's Hospital, St. Louis, MO
- 1994- Associate Radiologist, Jewish Hospital, St. Louis, MO

**8. Medical Licensure and Board Certification:**

1976 Rhode Island (inactive)  
1978 Massachusetts (inactive)  
1978 American Board of Internal Medicine (#60207)  
1979 American Board of Nuclear Medicine (#04484)  
1986 Missouri

**9. Military Service:**

None

**10. Honors and Awards:**

1970 Providence College, Cum Laude  
1973 Alpha Omega Alpha  
1974 St. Louis University Medical School, Cum Laude  
St. Louis University Medical School Award for Outstanding Physiology Student  
St. Louis University Medical School Award for Outstanding Otolaryngology Student  
1990 - 1996 Editor's Recognition Award for Distinction in Reviewing, Radiology  
1992 Listed under the specialty "Nuclear Medicine - Radiation Accidents" in "The Best Doctors in America", Naifeh S and Smith GW (editors), Woodward / White, Aiken, S Carolina, 1992-1993 edition.  
1994- Listed under the specialty "Nuclear Medicine - Radiation Accidents" and "Nuclear Medicine - General" in "The Best Doctors in America", Naifeh S and Smith GW (editors), Woodward / White, Aiken, S Carolina, 1994-1995 edition.  
1996- Cited in Who's Who in America beginning with the 51st edition (1997).  
1996- Cited in Who's Who in Medicine and Healthcare beginning with the 1st edition (1997).  
2008 Lifetime Achievement Award, Academic Council, Society of Nuclear Medicine  
2012 Fellow American College of Nuclear Medicine  
2014 Fellow Society of Nuclear Medicine and Molecular Imaging  
2015 Lifetime Achievement Award, Academic Council, American College of Nuclear Medicine

**11. Editorial Responsibilities:**

1979- Reviewer, Journal of Nuclear Medicine  
1982 Co-editor, "Nuclear Imaging" section for the Diagnostic Cardiology supplement of Cardiovascular Medicine  
1983 Co-editor, "Diagnostic Imaging" section of Medical Instrumentation  
1984-86 Editor, Medical Instrumentation  
1987-89 Reviewer, Circulation  
1987-92 Reviewer, Gastroenterology  
1987- Reviewer, Radiology  
1990- Reviewer, Annals of Thoracic Surgery  
1992- Reviewer, Journal of the American Medical Association  
1992- Reviewer, Journal of Coronary Artery Disease  
1992- Reviewer, American Journal of Roentgenology  
1998-2007 Assistant Editor (Nuclear Radiology), American Journal of Roentgenology

**12. Professional Societies and Organizations:**

1978- Society of Nuclear Medicine  
1985 Gastroenterology Subchairman, Scientific Program Committee, 32nd Annual Meeting of the Society of Nuclear Medicine, Houston, TX  
1985-86 Program Director, Northeast Regional Scientific Meeting of the Society of Nuclear Medicine, Greater New York and New England Chapters  
1987-2012 Association of University Radiologists  
1987- 2002 Health Physics Society  
1987- American College of Nuclear Physicians

**12. Professional Societies and Organizations: (cont):**

1989-1995	Member, Subcommittee on Risks of Low-Level Ionizing Radiation, Society of Nuclear Medicine
1989-92	Member, Taskforce on Practice Guidelines, Society of Nuclear Medicine
1989-92	Council member, Missouri Valley Chapter, Society of Nuclear Medicine
1990-93	Associate Chairman - Scientific Exhibits, Scientific Program Committee, Society of Nuclear Medicine
1990-1995	Member, Scientific Affairs and Research Committee, Society of Nuclear Medicine
1990	Co-Team Leader, Health Effects Of Chernobyl Nuclear Accident, International Atomic Energy Agency, Vienna Austria.
1992-93	Chairman, Office of Health Care Policy, Society of Nuclear Medicine
1993-98	Member, Committee on an Assessment of CDC Radiation Studies, National Research Council, National Academy of Science.
1993-99	Board member, American Board of Nuclear Medicine
1993-2005	Member, Scientific Committee 91 (Scientific Committee on Radiation Protection in Medicine), National Council on Radiation Protection and Measurements.
1994-97	Chairman, Technology and Outcomes Assessment Committee, Society of Nuclear Medicine
1994-95	Member, Presidential Advisory Committee on Human Radiation Experiments
1996	Scientific Program Chairman, Missouri Valley Chapter, Society of Nuclear Medicine.
1996-2009	Council member, National Council of Radiation Protection and Measurement
1996-2005	Member, Scientific Committee 1 (Scientific Committee on Radiobiology, Epidemiology, Risk and Basic Radiation Protection Criteria), National Council on Radiation Protection and Measurements.
1997 - 1998	Member, Committee on Guidelines for Thyroid Cancer Screening After Exposure to Radioactive Iodine Fallout, Institute of Medicine, National Academy of Sciences.
1997 - 1998	Member, Committee on Public Health Implications of Exposure to I-131 From Nevada Atomic Bomb Tests, Board of Radiation Effects Research, National Academy of Sciences.
1997 - 1999	President, Missouri Valley Chapter, Society of Nuclear Medicine.
1997- 2011	Member, Veterans' Advisory Committee on Environmental Hazards, Department of Veterans' Affairs, Washington, D.C.
1998	Program Chairman for the 1999 Annual Meeting of the National Council on Radiation Protection and Measurement entitled "Radiation Protection in Medicine".
1998-2008	Chairman, Scientific Committee 1-8 (Radiation Effects on the Thyroid), National Council on Radiation Protection and Measurements.
1999 - 2002	Chairman, Radiobiological Effects of Ionizing Radiation. Society of Nuclear Medicine.
2000-2005	Board of Directors, National Council of Radiation Protection and Measurement
2000-2004	Chairman, Budget and Finance Committee, National Council of Radiation Protection and Measurement
2000-2006	Board of Directors, Society of Nuclear Medicine
2001-2002	Vice-President-elect, Society of Nuclear Medicine
2001-2010	Scientific Chair, Veterans' Advisory Committee on Environmental Hazards, Department of Veterans' Affairs, Washington, D.C.
2002-2003	President-elect, Society of Nuclear Medicine
2002-2005	Scientific Vice President, Radiation Protection in Medicine Committee, National Council of Radiation Protection and Measurement
2003-2006	U.S. delegate, United Nations Scientific Committee on the Effects of Atomic Radiation (UNSCEAR)
2003-2004	President, Society of Nuclear Medicine
2004-2014	Executive Director, American Board of Nuclear Medicine
2004-2005	ABMS Voting Representative
2004-2005	ABMS COBRE
2005-2009	ABMS BOD
2007-2012	ABMS COMMOC committee
2007-2012	ABMS COREP committee
2009	Member DOE Ethics review committee, RERF

**12. Professional Societies and Organizations: (cont):**

2014 Member DOE Ethics review committee, RERF  
2015-2016 Member of National Academy of Sciences committee on Mo-99 production  
2016- Member, Nuclear and Radiation Studies Board (NRSB), National Academy of Sciences  
2016 - Chairman, Medical Imaging Advisory Committee, FDA

**13. Major Invited Professorships and Lectureships (since 1990):**

“Nuclear Accident Management”, 37th Annual Meeting of the Society of Nuclear Medicine, June 21, 1990.

“Low Level Radioactive Waste” Missouri Valley Chapter of the Society of Nuclear Medicine, Omaha, Nebraska, October 7, 1990.

“Historical and World-Wide Aspects of Radiation Accidents” 15th Annual San Diego Postgraduate Radiology Course, October 22, 1990.

“Lessons From Chernobyl” 15th Annual San Diego Postgraduate Radiology Course, October 22, 1990.

“Pulmonary Emboli and Lung Scanning” 15th Annual San Diego Postgraduate Radiology Course, October 23, 1990.

“Practical Update on Nuclear Medicine” 15th Annual San Diego Postgraduate Radiology Course, October 22, 1990.

“The role of physicians in minimizing the psychological effects associated with radiation accidents.” REAC/TS International Conference, Oak Ridge, TN, December 7, 1990.

“Pulmonary radioisotope scanning.” Residents Radiology Review Course, UCSD, San Diego CA, April 22, 1991.

“Cardiovascular radioisotope scanning.” Residents Radiology Review Course, UCSD, San Diego CA, April 22, 1991.

“The role of pulmonary imaging in the diagnosis of pulmonary embolism: An overview.” Central Chapter of the Society of Nuclear Medicine, Milwaukee, Wisconsin, April 28, 1991.

“Health effects of the Chernobyl accident.” International Atomic Energy Agency, Vienna, Austria, May 22, 1991.

“Nuclear Accident Management”, 38th Annual Meeting of the Society of Nuclear Medicine, Cincinnati, OH, June 11, 1991.

“Current effects of the Chernobyl accident on the general health.” Japanese Government, Tokyo, Japan, June 28, 1991.

“Lessons from Chernobyl.” Hiroshima Red Cross and Atomic Bomb Survivors’ Hospital, Hiroshima, Japan, June 29, 1991.

“The physician’s role in the management of persons exposed to low level radiation.” Virginia State University, Petersburg, VA, September 26, 1991.

“Radon and ionizing radiation.” American College Of Occupational Medicine State-Of-The-Art Conference, St. Louis, MO, October 30, 1991.

**13. Major Invited Professorships and Lectureships (cont):**

“Health effects of the Chernobyl accident” Greater Kansas Radiological Society, Kansas City, Kansas, November 12, 1991.

“Health effects of the Chernobyl accident” National Conference on Health and Mental Health of Soviet Refugees, Chicago, IL, December 11, 1991.

“Chernobyl: Perceptions and Realities” University of Western Ontario, London, Canada, March 31, 1992.

“The International Chernobyl Project” University of Western Ontario, London, Canada, April 1, 1992.

“Effects of Low Level Radiation” University of Western Ontario, London, Canada, April 1, 1992.

“Effects of Low Level Radiation: Scientific, Political and Social Views” Ethical Society, St. Louis, MO, April 5, 1992.

“Learning From Experience: Scientific, Political And Social Implications of Chernobyl.” Environmental Risk Assessment, Communication and Application Professional and Public Workshop, Boise, Idaho, May 27-28, 1992.

“Understanding Outrage”, 39th Annual Meeting of the Society of Nuclear Medicine, Los Angeles, CA, June 8, 1992.

“Nuclear Accident Management”, 39th Annual Meeting of the Society of Nuclear Medicine, Los Angeles, CA, June 10, 1992.

“Pulmonary Nuclear Medicine”, “Cardiac Nuclear Medicine”, “Health Effects of Low Level Radiation”, “Chernobyl Perceptions and Realities”, “The International Chernobyl Project”. Visiting Professor, Dalhousie University, Halifax, Nova Scotia. September 24-25, 1992.

“Carcinogenic and Mutagenic Radiation Effects”. Management of Radiation Accidents Course, University of New Mexico, Albuquerque, New Mexico. October 15, 1992.

“Diagnostic Radiology: Risks and Benefits”, “Chernobyl: Perceptions and Realities”. Atomic Energy Council, Taipei Taiwan. October 23-25, 1992.

“Effects of Low Level Radiation: Scientific, Social and Political Views”. Refresher course. Radiological Society of North America. Chicago, IL. November 30, 1992.

“GI Imaging”; “Endocrine Imaging”. UCSF Radiology Review Diagnostic Imaging Course. San Francisco, CA, March 1-3, 1993.

Keynote Speaker - “Chernobyl: Perceptions and Realities”; “Effects of Low Level Radiation: Scientific, and Public Views”. Eastern Great Lakes Chapter. Society of Nuclear Medicine. Niagra-on the Lake, Canada, March 5, 1993.

“Chernobyl: Perceptions and Realities”; “Effects of Low Level Radiation: Scientific, and Public Views”; “Risk Communication”. Bethesda Naval Medical Center, Bethesda, MD, March 18, 1993.

“Practical Nuclear Accident Management”; “Role Of Nuclear Medicine In The Evaluation Of Heart And Lung Transplants.” 40th Annual Meeting of the Society of Nuclear Medicine, Los Angeles, CA, June, 1993.

“Chernobyl: Perceptions and Realities”; “Effects of Low Level Radiation: Scientific, and Public Views”; “Risk Communication”. Bethesda Naval Medical Center, Bethesda, MD, October 18, 1993.

**13. Major Invited Professorships and Lectureships (cont):**

“International Chernobyl Project”; Visiting Professor, Joint Program in Nuclear Medicine, Harvard Medical School, Boston MA, October 21, 1993.

“Health Care Reform: Scientific Challenges”; “Chernobyl: Perceptions and Realities” 26th Annual Meeting of the New England Chapter Society of Nuclear Medicine. Newport, RI October 22-24, 1993.

“Effects of Low Level Radiation: Scientific, Social and Political Views”. Refresher course. Radiological Society of North America. Chicago, IL. December 3, 1993.

“Pulmonary Studies: Outcome Efficacy in Pulmonary Thromboembolism”; “ACNP/SNM Practice Guideline Activities”; “Technology Assessment”. American College of Nuclear Physicians. Phoenix, AZ. January 9-12, 1994.

“Chernobyl: Perceptions and Realities”; “Effects of Low Level Radiation: Scientific, and Public Views”; “Risk Communication”. Bethesda Naval Medical Center, Bethesda, MD, March, 1994.

“Chernobyl: Perceptions and Realities” American Society of Radiologic Technologists, St. Louis, Mo, June 21, 1994.

“Practical Nuclear Accident Management”; “Role Of Nuclear Medicine In The Evaluation Of Heart And Lung Transplants.” 40th Annual Meeting of the Society of Nuclear Medicine, Orlando, FL June, 1994.

WHO expert panel “Health Effects of the Chernobyl Accident on Recovery Workers”. St. Petersburg, Russia June 26-July 2, 1994.

"Risk Communications: How not to frighten patients.", New England Chapter Society of Nuclear Medicine, Boston, MA, October, 1994.

“Chernobyl: Perceptions and Realities”; “Effects of Low Level Radiation: Scientific, and Public Views”; “Risk Communication”. Bethesda Naval Medical Center, Bethesda, MD, November, 1994.

“Chernobyl: Perceptions and Realities”; “Effects of Low Level Radiation: Scientific, and Public Views”; “Risk Communication”. Bethesda Naval Medical Center, Bethesda, MD, March, 1995.

“Practical Nuclear Accident Management”; “Ventilation Scintigraphy”; "The Faden Commission". 41st Annual Meeting of the Society of Nuclear Medicine, Minneapolis, MN June, 1995.

"The Report of the Advisory Committee On Human Radiation Experiments."; Radiation and Risk Assessment: Communicating Risks of Radiation to Subjects." Public Responsibility in Medicine and Research, Boston MA, October 19, 1995

“Chernobyl: Perceptions and Realities”; “Effects of Low Level Radiation: Scientific, and Public Views”; “Risk Communication”. Bethesda Naval Medical Center, Bethesda, MD, November 1, 1995.

"Presidential Advisory Committee On Human Radiation Experiments: Blind Men Examining the Elephant." National Academy of Sciences, Washington, DC, November 1, 1995

"SNM Procedure Guidelines." Mid-eastern SNM Chapter. Rockville MD, April 13, 1996.

"Technology assessment: The good, the bad and the horrific." (Keynote speech) Australian and New Zealand Society of Nuclear Medicine, Ayer's Rock, Australia, June 28, 1996.

"Measuring Value: David Jones or Target". Australian and New Zealand Society of Nuclear Medicine, Ayer's Rock, Australia, June 29, 1996.

**13. Major Invited Professorships and Lectureships (cont):**

"Pulmonary Embolism: Technology assessment gone mad!". Australian and New Zealand Society of Nuclear Medicine, Ayer's Rock, Australia, June 30, 1996.

"Chernobyl: Perceptions and Realities"; "Effects of Low Level Radiation: Scientific, and Public Views"; "Risk Communication". Bethesda Naval Medical Center, Bethesda, MD, October 22, 1996.

"Chernobyl: Lessons Learned" University of Western Ontario, London, Canada, October 23, 1996.

"Chernobyl: Lessons Learned" Missouri Radiologic Society, St. Louis, MO, March 18, 1997.

"Chernobyl: Perceptions and Realities" American Society of Radiologic Technologists, St. Louis, MO, April 26, 1997.

"Chernobyl: Facts and Fantasies" Sierra Valley Nuclear Medicine Association, Santa Rosa, California, May 17, 1997.

"Effects of Radiation on the Thyroid" Sierra Valley Nuclear Medicine Association, Santa Rosa, California, May 17, 1997.

"Pulmonary Embolism"; "Medical Decision-Making". Bethesda Naval Medical Center, Bethesda, MD, October 7, 1997.

The Plutonium Injection: Whitewash or Witch-hunt?, The New York Academy of Medicine, New York, NY, April 21, 1998.

Summary of the NCI's Report on Radiodine Exposure From Atmospheric Testing, Society of Nuclear Medicine, Toronto Ontario, June 11, 1998.

Screening for Thyroid Cancer, Society of Nuclear Medicine, Toronto Ontario, June 11, 1998.

Relative Biological Effectiveness of External Radiation vs I-131: A review of Animal Data. First International Seminar on Radiation and Thyroid Cancer, St. John's College, Cambridge, UK, July 21, 1998.

"Effects of Low Level Radiation"; "Practical Radiation Accident Management". Bethesda Naval Medical Center, Bethesda, MD, October 20, 1998.

"Pediatric Thyroid Cancer: Lessons from Chernobyl" Society of Nuclear Medicine Meeting, Los Angeles CA. June 6, 1999

"Effects of Low Level Radiation"; "Practical Radiation Accident Management". Bethesda Naval Medical Center, Bethesda, MD, October 12, 1999.

"Spiral CT vs VQ Imaging in the Diagnosis of Pulmonary Embolism" Society of Nuclear Medicine Meeting, St. Louis, MO. June 3, 2000

"Uncertainties in Medical Radiation Exposures" American Statistical Society, Park City, UT June 2000

"Diagnosis of Pulmonary Embolism: Logic Gone Awry" St. Louis University, St. Louis, MO. April 2001

"Russian Radiation Studies: An Overview" Society of Nuclear Medicine Meeting, Toronto, Ontario. June, 2001

"Treatment of Hyperthyroidism: Consensus and Controversy" Missouri Valley Chapter meeting, Columbia, MO. October 7, 2001

**13. Major Invited Professorships and Lectureships (cont):**

“Diagnosis of Pulmonary Embolism: Logic Gone Awry” American College of Physicians, Philadelphia, PA. April 2002

"The V/Q Scan: Has it Become a Dinosaur?" Mid-Eastern Chapter Meeting, Ocean City, MD. April, 2002

“Hospital Preparedness for Events Involving Radioactive Materials”, “NCRP Report 136: The linear no threshold hypothesis”, “V/Q Imaging” Society of Nuclear Medicine, Los Angeles, June 2002

“V/Q Imaging” SNM Board Review Course Society of Nuclear Medicine, Los Angeles, June 2002

“Diagnostic Medical Radiation Exposures: What Can We Realistically Learn From Epidemiologic Studies?” American Statistical Society, Deerfield Beach, FL June 2002

“Nuclear Terrorism: Approaches to Radiation Exposure” Saint Joseph Regional Medical Center of South Bend, Indiana November 20, 2002

“Radiation Effects on the Thyroid Gland”, “Chernobyl: Lessons Learned”, “Potential for Terrorism Using Radioactive Materials”, “Risks to Humans from Low Level Radiation Exposure”, “Practical Radiation Accident Management” Arab School for Science and Technology, Kuwait December 14-18, 2002

"The SNM - here today - where is it going tomorrow?", "Radiation and Terrorism: Perceptions and Realities" Southwestern Chapter SNM, Oklahoma City, OK April 12, 2003.

“Spiral CT vs V/Q”, “Preparedness for a terrorist attack involving radioactive material” ANZSNM, Sydney, Australia May 11-12, 2003.

“V/Q Imaging” SNM Board Review Course, New Orleans, June 22, 2003

“Molecular imaging: What is it and what does it mean for the future of nuclear medicine”, “Radiation safety issues related to I-131 therapy”, “Controversies related to I-131 therapy”, Interactive session IAEA Nuclear Oncology Symposium, Porto Alegre Brazil January 18-23,2004

“V/Q Imaging” SNM Board Review Course, June 19, 2004; “Terrorism Using Radioactive Materials - Hospital Preparedness”, “FDA Imaging Guidance Document” June 22, 2004, SNM Annual Meeting, Philadelphia PA

“Nuclear Terrorism: Perceptions Vs Realities” Minnesota Radiological Society April 2, 2005, Minneapolis, Minnesota.

“Terrorism Using Radioactive Materials: What Nuclear Medicine Professionals Should Know: Hospital Preparedness” 52nd Annual Meeting Society Of Nuclear Medicine June 20, 2005 Toronoto, Ontario, Canada

“Terrorism Involving Radioactive Materials: Facts And Fantasies: Radiation Injuries: What to expect and how to treat them”, June 4, 2006, 53<sup>rd</sup> Annual Meeting Society Of Nuclear Medicine, San Diego, California

“Striving for perfection. MOC”, SNM midwinter meeting, February 2007, San Antonio, TX.

“Striving for perfection. MOC”, SNM SW Chapter meeting, March 2007, San Antonio, TX.

“Terrorism Involving Radioactive Materials: Perceptions vs Realities”, SNM MidEastern Chapter meeting, April 2007, Ocean City, MD



**13. Major Invited Professorships and Lectureships (cont):**

“Terrorism Involving Radioactive Materials: Perceptions vs Realities”, June 4, 2007, 54<sup>rd</sup> Annual Meeting Society Of Nuclear Medicine, Washington, DC

“Leadership Success in Academic Nuclear Medicine”, June 14, 2008, 55th Annual Meeting Society Of Nuclear Medicine, New Orleans, LA

“ABNM Perspective on MOC: Part IV Practice Performance Assessment”, June 15, 2008, 55th Annual Meeting Society Of Nuclear Medicine, New Orleans, LA

Visiting Professor, University of Virginia, April 9-10, 2009 – “Nuclear Terrorism: Scenarios and Consequences”; “Radiation Safety for the Healthcare Professional: Is there a patient death toll from diagnostic imaging?”; “Resident Case Review”; “Nuclear Terrorism: Hospital Preparedness”.

56th Annual Meeting Society Of Nuclear Medicine, Toronto, Ontario, June 12-15, 2009 – “Lymphatic Drainage in the Chest”; “ABNM: Practice Performance Assessment”; “A Tribute to Tom Miller”; “Physician Competency: The Role of Maintenance of Certification”; “Terrorism Using Radioactive Materials: Possible Scenarios and Consequences”; “Terrorism Using Radioactive Materials: Hospital Preparedness: The Management and Treatment of Radiation Injuries”.

SNM Midwinter meeting, Albuquerque, NM 1/28/10 – “V/Q Imaging: An Update”

57th Annual Meeting Society Of Nuclear Medicine, Salt Lake, Utah, June 6-10, 2010 – “What Is the Relationship Between Dose and Risk? How Is This Determined?”; “Is There a Death Toll From Diagnostic Imaging???”; “MOC: Meaningless Bureaucracy or Essential for Healthcare?”.

Conjoint Meeting of the New England and New York Chapters of the Society Of Nuclear Medicine, Philadelphia, PA, October, 2010 – Kaplan-Holman lecturer “Chernobyl: Lessons learned”; “Is There a Death Toll From Diagnostic Imaging???”

SNM Midwinter meeting, January 1/20/11 – “Radiation Dose from PET/CT”

Visiting Professor, Baylor University Medical Center, Dallas, TX, August 9-10, 2011 – “Health Effects of Reactor Accidents – Three Mile Island, Chernobyl, Fukushima”; “Radiation Accidents and Disasters – Hospital Preparedness”; “Is There a Death Toll from Diagnostic Imaging”.

Western Regional Chapter of the Society Of Nuclear Medicine, Seattle, WA, October, 2011 – Taplin lecturer “Diagnosis of Pulmonary Embolism: Logic Gone Awry”; “Is There a Death Toll From Diagnostic Imaging???”

Visiting Professor, Montefiore Medical Center, New York, NY, November 9-10, 2011 – “Is There a Death Toll from Diagnostic Imaging”. “Diagnosis of Pulmonary Embolism: Logic Gone Awry”

Western Regional Chapter of the Society Of Nuclear Medicine, Honolulu, HI February 18, 2012 – “Diagnosis of Pulmonary Embolism: Logic Gone Awry”; “Is There a Death Toll From Diagnostic Imaging???”

2012 CANM/EGL-SNM Meeting Ottawa, Ontario May 2 -5, 2012. “Reactor Accidents: The Unintended Consequences of Fear.”

59th Annual Meeting Society Of Nuclear Medicine, Miami Beach, FL, June 10-13, 2012 – “History of the ABNM”; “SAMs: ABNM expectations”

SNM Midwinter meeting, January 1/24/13 – “Quality Improvement and Maintenance of Certification”

61<sup>st</sup> Annual Meeting Society Of Nuclear Medicine, Saint Louis, MO June 10, 2014 “Quality and Safety: The Ugly, The Bad and The Good.”

**13. Major Invited Professorships and Lectureships (cont):**

Missouri Valley Chapter meeting; Lake of the Ozarks, MO; 9/16/2016 “Three Mile Island, Chernobyl and Fukushima: Lessons Learned”

Government Openness and Research: A 20-Year Legacy of the Advisory Committee on Human Radiation Experiments; Johns Hopkins University, Baltimore, MD; 10/5/2016; “Informed Consent: The Toughest Task”

Missouri Valley Chapter meeting; Kansas City, KS; 9/15/2017 “Appropriate Use Criteria in V/Q Lung Imaging for PE”

World Federation of Nuclear Medicine and Biology, Melbourne, Australia April 20-24, 2018 “Where to now for the V/Q scan - US perspective: Past Present and Future.”; “Effectively Communicating Radiation Risks: The Toughest Task”

**14. Consulting Relationships and Board Memberships:**

1979 - 93            Radiation Emergency Management Services, Inc. Albuquerque, New Mexico

**15. Research Support:**

1. National Institute of Aging P50 AG015340901; “Radionuclide Imaging In Alzheimer’s Disease” - \$40,000; 1985.
2. E.R. Squibb Inc.; “Clinical Investigation of Tc-99m SQ 32097 as an Aid in the Evaluation of Stroke” - \$20,000; 1988.
3. Centocor, Inc.; “Evaluation of the Safety and Preliminary Diagnostic Accuracy of Tc-99m Labeled Antifibrin T2G1s Fab’ Monoclonal Antibody in Patients with Deep Venous Thrombosis” - \$30,000; 1989.
4. NeoRx Corp.; “A Multi-Center Clinical Study Using a Technetium Labeled Monoclonal Antibody to Evaluate the Mediastinum in Newly Diagnosed Non-Small Cell Cancer” - \$20,000; 1990.
5. R. W. Johnson, Inc.; “A Multicenter Clinical Study Using <sup>111</sup>In-Labeled Human Serum Gamma Globulin (RWJ28299-134) to Evaluate Patients with Suspected Sites of Infection or Inflammation” - \$20,000; 1992.
6. ACNP/SNM SPECT Project; “Evidence Table For Myocardial Perfusion Imaging.” - \$60,000; 1993.
7. Glaxo Welcome Inc. Imaging center for analysis of Tc-99m sestamibi scintigraphy in patients with cancer - \$70,000; 1997.
8. Diatide, Inc. “A multicenter within-patient clinical study to evaluate the safety and efficacy of Technetium-99m P829 for the detection and localization of somatostatin receptor-expressing neuroendocrine tumors.” - \$30,000; 1997.
9. N.I.H. Assessment of the relationship of capillary permeability to lung injury (Daniel Schuster, M.D, principal investigator - \$15,000 salary support; 1999).
10. IDEC. “A randomized phase III multicenter controlled trial to evaluate the efficacy and safety of IDEC-Y2B radioimmunotherapy compared to Rituxan immunotherapy of relapsed or refractory low-grade or follicular B-cell non-Hodgkin's lymphoma.” - \$15,000; 1998.
11. IDEC protocol 106-04. “A randomized phase III multicenter controlled trial to evaluate the efficacy and safety of IDEC-Y2B radioimmunotherapy compared to Rituxan immunotherapy of relapsed or refractory low-grade or follicular B-cell non-Hodgkin's lymphoma.” - \$15,000; 1998.
12. IDEC protocol 106-05. “A phase II, open-label, multi-center trial to evaluate the efficacy and safety of IDEC-Y2B8 radioimmunotherapy of relapsed or refractory low-grade or follicular B-cell non-Hodgkin's lymphoma in patients with mild thrombocytopenia.” - \$15,000; 1998.
13. IDEC protocol 106-06. “A phase II, open-label, multi-center trial to evaluate the efficacy and safety of IDEC-Y2B8 radioimmunotherapy in patients with relapsed or refractory low-grade or follicular B-cell non-Hodgkin's lymphoma who have not responded to prior Rituximab therapy.” - \$15,000; 1998.
14. Dupont-Merck Pharmaceutical Company protocol DMP444-011. “An open-label, non-randomized trial to evaluate the ability of DMP444 tomographic imaging for the detection of pulmonary embolism in patients with suspected and confirmed pulmonary embolism.” - \$30,000; 1998.
15. Dupont-Merck Pharmaceutical Company protocol DMP444-012. “A phase II open-label, non-randomized pilot trial to determine the optimal imaging time for thrombus detection with DMP444 in five patient population groups.” - \$15,000; 1999.

**15. Research Support (continued):**

16. Coulter Pharmaceutical protocol CP-98-020. "Expanded access study of Iodine-131 Anti-B1 antibody for the relapsed/refractory low-grade and transformed low-grade non-hodgkin's lymphoma." - \$5,000; 1999.
17. PIOPED II investigator - \$60,000 salary support 1999-2003
18. PIOPED III investigator - \$15,000 salary support 2006-2008
19. Cyclomedica Australia Pty Ltd: Technegas 2017-

**16. Clinical Title and Responsibilities:**

Associate Director, Division of Nuclear Medicine

Clinical responsibilities include interpretation of nuclear medicine studies at Barnes and Childrens Hospitals, supervision of radiology and nuclear medicine residents and aiding in the periodic review and updating of clinical procedures.

**17. Teaching Title and Responsibilities:**

Professor of Radiology

Teaching responsibilities include instruction of radiology and nuclear medicine residents during their interpretation of clinical studies, correction of reports dictated by residents and conducting resident teaching conferences. Teaching conferences include didactic and case review conferences in the division, noon departmental conferences and pediatric nuclear medicine conferences. In addition, lectures are given to cardiology fellows and second year medical students.

**18. Bibliography:**

a. Peer Reviewed Manuscripts

1. Royal HD, Shields JD, Donati RM: Misplacement of central venous catheters and unilateral pulmonary edema. *Arch Int Med* 135:1502-1505, 1975.
2. Royal HD, Brown PH, Claunch BD: Mobile gamma cameras: A comparative evaluation. *Radiol* 128:229-234, 1978.
3. Royal HD, Brown PH, Claunch BD: Effects of a reduction in crystal thickness on Anger camera performance. *J Nucl Med* 20:977-980, 1979.
4. Royal HD, Papanicoloau N, Bettman MA, McNeil BJ: Scintigraphic identification of bleeding duodenal varices: A case report. *Am J Gastroenterol* 74:173-175, 1980.
5. Front D, Royal HD, Israel O, Parker JA, Kolodny GM: Scintigraphy of hepatic hemangiomas: the value of Tc-99m labeled red blood cells. *J Nucl Med* 22:684-687, 1981.
6. Royal HD, Aker EM, Parker JA, Front D, Kolodny GM: An inexpensive auxiliary display station for a nuclear medicine computer system. *J Nucl Med* 22:1089-1090, 1981.
7. Beckmann RG, Sasaki MS, Royal HD, Parker HA, Kolodny GM: Incorporation of a RATFOR preprocessor into a nuclear medicine computer system. IN: *Digital Imaging: Clinical Advances in Nuclear Medicine*, Society of Nuclear Medicine, New York, pp 165-172, 1982.
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