

All of the diagnostic radiology residents are actively encouraged to pursue research interests. This process is initiated early in their training. During their first few months, all first year residents have a one-on-one meeting with the residency director or associate residency director to discuss research within the department. During this discussion, the residents are informed of the American Board of Radiology's requirement to provide documentation of a research effort. Detailed conversation focuses upon the many research opportunities within the department, and the residents are encouraged to use the program directors as a future resource. Later on in their residency, the resident's research interest is revisited during their semi-annual review. Our residents have a well-established history of research success. At the end of this document, there is a listing of their presentations and publications over the past five years.

Starting three years ago, a residency research track was created. This pathway focuses upon providing extensive research opportunities to talented applicants with a documented track record of research success. Trainees within the research track can petition for up to 12 months of dedicated research time over the course of their diagnostic radiology residency. Our research track emphasizes the importance of creating a curriculum tailored to the resident's project and research goals. We believe that an individualized pathway holds greater promise for success than a more structured and concrete regimen. Our first research track resident started their training in July of 2016, and we will be welcoming two new residents to this pathway in July of 2017.

#### Resident Publications:

1. Covington M, Krupinski E, Avery R and Kuo PH: Classification schema of symptomatic enterogastric reflux utilizing sincalide augmentation on hepatobiliary scintigraphy. *Journal of Nuclear Medicine Technology*; 2014; 42(3):198-202.
2. Kuo PH, Avery R, Lei H, Sherman S, Krupinski E, Bauer A, Seibyl J, Zubal G: Evaluation of an Objective Striatal Analysis program for determining laterality in uptake of DaTscan SPECT images: Comparison to clinical symptoms and to visual reads. *Journal of Nuclear Medicine Technology*; June 2014.
3. Nikolaidis P, Hammond NA, Day K, et al. Imaging Features of Benign and Malignant Ampullary and Periampullary Lesions. *RadioGraphics*. 2014 May;34(3):613-623.
4. Hur S, Krupinski E, McMillan N, Bauer A and Kuo PH: Optimizing the VQ scan for Image Quality and Radiation Exposure. *Journal of Nuclear Medicine Technology*; 2014; 42(1): 51-54.
5. Janicek A, Avery R and Kuo PH: The 'Pinwheel sign' in Dopamine Transporter Imaging. *Journal of Nuclear Medicine Technology*; 2014; 42(1): 75-76.
6. Davis MA, Scalcione LR, Gimber LH, Thompson RB, Avery RJ, Taljanovic MS. Paget sarcoma of the pelvic bone with widespread metastatic disease on radiography, CT, MRI, and 18F-FDG PET/CT with pathologic correlation. *Clin Nucl Med*. 2014 Apr; 39(4):371-3.

7. Taljanovic MS, Melville DM, Scalcione LR, Gimber LH, Lorenz EJ, Witte RS. Artifacts in musculoskeletal ultrasonography. *Semin Musculoskelet Radiol.* 2014 Feb; 18(1):3-11.
8. Day K, Avery R, Oliva I, Jokerst C. Coronary CTA appearance of anomalous left coronary artery arising from the pulmonary artery with Intramural Aortic Route. *Int J Cardiovasc Imaging.* 2014 Feb;30(2):241-3.
9. Duke E, Peterson AA, Erly WK. Migrating bullet: A case of a bullet embolism to the pulmonary artery with secondary pulmonary infarction after gunshot wound to the left globe. *J Emerg Trauma Shock.* 2014 Jan;7(1):38-40.
10. Gimber LH, Leong J, Todoki L, Yoon H-C. Avoiding unnecessary pulmonary CT angiography by using a combination of clinical criteria and d-dimer thresholds. *Open Journal of Radiology.* 2013 (3): 78-84.
11. Kuo PH, Avery R, Krupinski EA, Lei H, Bauer A, Sherman S, McMillan N, Seibyl J, Zubal G: Receiver-Operator-Characteristic Analysis of an Automated Program for Analyzing Striatal Uptake of 123IloflupaneSPECT images: Calibration Using Visual Reads. *Journal of Nuclear Medicine Technology*; 2013; 41(1): 26-31.
12. Covington M, McMillan N, Avery R and Kuo PH: The Semicolon Sign: Dopamine Transporter (DAT) Imaging Artifact from Head Tilt. *Journal of Nuclear Medicine Technology*; 2013; 41(2): 105-7.
13. Anavy N, Avery R, Desai C and Kuo PH: Wandering Transplant Kidney Presents as a Pitfall in Interpretation of Renal Scintigraphy for Dual Kidney Transplant. *Journal of Nuclear Medicine Technology*, December 2012; 40(4): 275-7.
14. Nawas M, Kubal WS, and Kuo PH: Decreased Cerebellar Activity on FDG-PET/CT Secondary to Diffuse Idiopathic Cerebellar Calcification. *Clinical Nuclear Medicine*, September 2012; 37(9):906-907.
15. Martin DR, Lauenstein T, Kalb B, Lurie C, Kitajima H, Sharma P, Salman K, Moreira R, Farris AB 3rd, Spivey J, Martinez E, Hanish S, Adsay V. Liver MRI and histological correlates in chronic liver disease on multiphase gadolinium-enhanced 3D gradient echo imaging. *J Magn Reson Imaging*, August 2012;36(2):422-9.
16. Kuhlman M, Meyer M, Krupinski EA: Direct reporting of results to patients: The future of radiology?. *Acad Radiol*, June 2012; 19:646-650.
17. Meyer M, Buadu A. "68-year-old female presents to the emergency room with acute abdominal pain, nausea and vomiting: Eosinophilic cholecystitis." Case in Point American College of Radiology. December 1. 2011. <http://3s.acr.org/CIP/CaseView.aspx?CaseId=qt7709PKzyo%3d>
18. Meyer M, Buadu A. "68-year-old female presents to the emergency room with acute abdominal pain, nausea and vomiting: Eosinophilic cholecystitis." Case in Point American College of Radiology. December 1. 2011. <http://3s.acr.org/CIP/CaseView.aspx?CaseId=qt7709PKzyo%3d>

19. Petkovska I, Martin DM, Covington MF, Urbina S, Duke E, Daye J, Stolz L, Keim S, Costello J, Chundru S, Arif H, Gilbertson D, Gries L, Kalb B.. Accuracy of noncontrast MRI for the detection of acute appendicitis: single institution clinical performance review. *Radiology*; accepted October 2015.
20. Covington MF, Seibyl J, Kuo PH. Adjusting ACR Appropriateness Criteria for Novel Radiopharmaceuticals. *J Am Coll Radiol*. 2015;12(12):1242-1243.
21. Covington MF, Sherman S, Kuo PH. American College of Radiology Case in Point: Lewy Body Dementia; published online July 2015.
22. Covington MF, Kuo PH. What does the evolving US Preventive Services Task Force mean for Radiology? Submitted to *AJR* December 2015.
23. Covington MF, Kuo PH. Occult cost of cancers from CT scans. Online publication on KevinMD.com, syndicated on KevinMD social media network January 2015
24. Day K, Oliva I, Krupinski E, Marcus F. Estimation of Right 4th Intercostal Space Using Sternal Notch to Xiphoid Process Length for More Accurate Electrocardiogram Lead Placement. *J Electrocardiol*. 2015 Nov-Dec;48(6):1058-61.
25. Day K, Jokerst CE, Avery RJ, Oliva IB, Vargas D, Kazui T, Khalpey Z. The Total Artificial Heart: Historical Perspectives, Current Applications, Future Directions. Poster presented at: Radiological Society of North America 2015 101st Scientific Assembly and Annual Meeting; 2015 Nov 29 - Dec 4; Chicago, IL.
26. Day K, Janicek A, Evans C, Jokerst C, Petkovska I, Ovitt T, Krupinski E, Oliva I. Qualitative assessment of cardiac chamber size on axial cross sectional magnetic resonance imaging compared to standard quantitative calculations. [Under Review, *Journal of Thoracic Imaging*]
27. Hannallah J, Elaini T, Wickstrom K, Hooten R, Habib M. *Medical image of the week: diffuse axonal injury*. *Southwest J Pulm Crit Care*. 2015;11(6):264-5. • The effect of stents in cerebral aneurysms: A review. Kenan Alkhalili, Jack Hannallah, Mary Cobb, Nohra Chalouhi, Jessica L. Philips, Angela B. Echeverria, Pascal Jabbour, M. Haithem Babiker, David H. Frakes, L. Fernando Gonzalez. *Asian Journal of Neurosurgery*.
  - Minipterional craniotomy approach for ruptured and unruptured anterior circulation aneurysms - our initial experience. Kenan Alkhalili, Jack Hannallah, Gasser Alshyal, Mohab Nageeb, Khaled Aziz. *Asian Journal of Neurosurgery*.
28. Ho PW, Black S, Jokerst C. Pulmonary AVM: October 2015 imaging case of the month. *Southwest J Pulm Crit Care*. 2015;11(4):144-50.
29. Ho PW, Jokerst C. Metastatic choriocarcinoma: September 2015 imaging case of the month. *Southwest J Pulm Crit Care*. 2015;11(3):105-9.

30. Erly WK, Becker JL, Inampudi R, Hur S, Nael K, Kubal WS. Fractures of the posterolateral maxillary sinus: a masticator space blowout injury? *Emergency Radiology*. 2016 June 14; doi:10.1007/s10140-016-1404-3.
31. Kevin S. Berbaum, PhD, Elizabeth A. Krupinski, PhD, Kevin M. Scharz, PhD, Robert T. Caldwell, MFA, Mark T. Madsen, PhD, Seung Hur, MD, Archana T. Laroia, MD, Brad H. Thompson, MD, Brian F. Mullan, MD, Edmund A. Franken Jr., MD. The Influence of a Vocalized Checklist on Detection of Multiple Abnormalities in Chest Radiography. *Academic Radiology*. 2016 April; 23(4): 413-420.
32. 10 Weapons to Terminate Your Student Loans May 31, 2015 - <http://www.hcplive.com/physicians-money-digest/contributor/dr-wise-money/2016/05/10-weapons-to-terminate-your-student-loans>. Amanda Liu
33. 6 Things a PGY2 Resident Splurges On - June 3, 2016 <http://www.hcplive.com/physicians-money-digest/contributor/dr-wise-money/2016/06/6-things-a-pgy2-resident-splurges-on>. Amanda Liu
34. 10 Ways A Radiologist's Kid Will Pay for Her College... (Mostly) on Her Own - June 17, 2016 See more at: <http://www.hcplive.com/physicians-money-digest/contributor/dr-wise-money/2016/06/10-ways-a-radiologists-kid-will-pay-for-her-college-mostly-on-her-own#sthash.yc4kpgdZ.dpuf>. Amanda Liu

#### Resident Presentations:

1. Hur S, Howell B, Krupinski E and Kuo PH: "Comparison of three protocols for gallbladder ejection fraction by hepatobiliary scintigraphy," Society of Nuclear Medicine and Molecular Imaging Annual Meeting, St. Louis, MO (June 2014).
2. Khan R, Covington MF, Jedd A, Sharma P, Krupinski E & Nael K. Feasibility study of flow compensation to improve diagnostic quality of T1 post contrast spin echo magnetic resonance images. Presented at the American Society of Neuroradiology (ASNR) annual meeting in Montreal, Quebec, May 2014.
3. Petkovska I, Covington MF, Urbina S, Arif H, Martin DR & Kalb B. Accuracy of noncontrast MRI for the evaluation of appendicitis. Presented at the ISMRM 2014 Annual Meeting, Milan, Italy, May 2014.
4. Puneet Sharma, Eugene Duke, Tulshi Bhattacharyya, Stephan Kannengiesser, Bobby Kalb, and Diego R Martin. Comparative Analysis of Continuous Table and Fixed Table Acquisition Methods: Effects on Fat Suppression and Time Efficiency for Single-Shot T2-weighted Imaging. Joint Annual meeting ISMRM-ESMRMB. Milan, Italy. May 2014.

5. Emerson M, Gilbertson D, Desoky S, Woodhead G. An Introduction to PPB: A Case Report of Pleuropulmonary Blastoma. *Pediatric Radiology*. 2014; 44 (Suppl 1): S173.
6. Emerson M, Gilbertson D, Desoky S. The Great Imitator: A Case Report of Congenital Syphilis. *Pediatric Radiology*. 2014; 44 (Suppl 1): S174.
7. Taljanovic MS, Melville MD, Klauser AS, Scalcione LR, Gimber LH, Kwoh KC. Ultrasound of the ankle and foot: rheumatologic applications. Electronic Exhibit (E170) at the 2014 Annual Meeting of the American Roentgen Ray Society (ARRS), May 2014, San Diego, CA.
8. Janicek A, Day K, Hall T, Jokerst C. An Intervention: Increasing Radiologists Confidence and Competence in Managing Contrast Reactions. Poster session presented at: 2014 American College of Radiology Resident and Fellow Section Annual Meeting; 2014 Apr 26–30; Washington, D.C. Poster session presented at: 2014 University of Arizona South Campus GME Scholarly Day; 2014 May 20; Tucson, AZ.
9. Jokerst C, Day K, Avery R, Oliva I. Cardiac Magnetic Resonance for Evaluation of Right Ventricular Function in Patients with Pacemakers/Defibrillators undergoing Cardiac Transplant Evaluation. Accepted for paper presentation at: 2014 North American Society of Cardiovascular Imaging Annual Meeting. Abstract is a finalist for the 2014 AHA CVRI Young Investigator Award.
10. Day K, Jokerst C, Avery R, Oliva I. Cardiac Magnetic Resonance in Patients with Pacemakers/Defibrillators: How We Do It. Accepted for paper presentation at: 2014 North American Society of Cardiovascular Imaging Annual Meeting. Abstract is a finalist for the 2014 AHA CVRI Young Investigator Award.
11. Covington M, Sherman S, Lei H, Lewis D, Krupinski E, and Kuo PH: "Survey of Patients and Physicians to Assess the Impact of Dopamine Transporter Imaging on Patient Care," 2014 ACR Annual Meeting and Chapter Leadership Conference, Washington D.C., (April 2014).
12. Eugene Duke, Bobby Kalb, Parminder Singh, Puneet Sharma, Mihra Taljanovic, Diego Martin. Whole Body Magnetic Resonance Imaging: A Streamlined and Practical Approach for Staging of Prostate Cancer. *RSNA*. Chicago, IL. Dec 2013.
13. Eugene Duke, Bobby Kalb, Surya Chundru, Hina Arif, James Costello, Diego Martin. Magnetic Resonance Imaging of Retroperitoneal Tumors: A Comprehensive Pictorial Review. *RSNA*. Chicago, IL. Dec 2013.
14. Covington MF, Urbina S, Stolz L, Martin DR, Gilbertson D, et al. Diagnostic performance of noncontrast abdominopelvic MRI for the evaluation of suspected acute appendicitis in patients <40 years old. Presented at the *RSNA* annual meeting, Chicago, IL, December 2013; presented at the Society of Computed Body Tomography & Magnetic Resonance annual meeting; Tucson, AZ, October 2013.
15. Covington MF, Urbina S, Krupinski E, Stolz L, Martin DR, et al. Noncontrast MRI versus contrast enhanced CT for evaluation of suspected appendicitis in patients <40 years: cost considerations and impact on emergency department patient throughput. Presented at the *RSNA* Annual Meeting,

Chicago, IL, December 2013; presented at the Society of Computed Body Tomography & Magnetic Resonance annual meeting; Tucson, AZ, October 2013.

16. Covington M, Avery R, Krupinski E and Kuo PH: "Enterogastric reflux: A hidden culprit in cases of suspected cholecystitis?" Scientific poster at the Society of Nuclear Medicine and Molecular Imaging Annual Meeting, Vancouver, Canada (June 2013).

17. Hur S, Bauer A, McMillan N, Krupinski E and Kuo PH: "Optimizing the VQ scan for image quality and radiation exposure," Scientific poster at the Society of Nuclear Medicine and Molecular Imaging Annual Meeting, Vancouver, Canada (June 2013).

18. Ho A, Avery R, Krupinski E and Kuo PH: "Importance of Sampling Nodes with Lower Radioactive Counts in Selective Sentinel Lymph Node Dissection for Melanoma and the Role of Lymphoscintigraphy," Oral presentation at the American Roentgen Ray Society Annual Meeting, Washington D.C., (April 2013).

19. Cheeney G, Guerrero M and Kuo PH: "The Advantages of SPECT in Parathyroid Adenoma Detection and Operating Room Cost Reduction," Scientific exhibit at the American Roentgen Ray Society Annual Meeting, Washington D.C., (April 2013).

20. Woodhead G, Avery R and Kuo PH: "Extrasosseous Findings and Mechanism of Uptake in Sodium Fluoride NaF-18 PET/CT," Education exhibit at the American Roentgen Ray Society Annual Meeting, Washington D.C. (April 2013). Bernstein A, Kupinski M, Krupinski E, and Kuo PH: "The Effects of Dose and Scan Time Reduction on Image Quality of Fluorine-18 PET Bone Scans," University of Arizona Biomedical Engineering Design Day, Tucson, AZ, October 2012.

21. Bauer A and Kuo PH: "Parkinson Disease: Ioflupane I-123 DaTscan laterality as a predictor of tremor sidedness," Oral presentation at the American Roentgen Ray Society Annual Meeting, Vancouver, Canada (May 2012).

22. Bauer A and Kuo PH. "Advanced Functional Imaging of Osseous Malignancy," Educational exhibit at the American Roentgen Ray Society Annual Meeting, Vancouver, Canada (May 2012).

23. Amy Janicek, Binu Tharakan, Devendra A. Sawant, Felicia A. Hunter, Ed W. Childs. "Lipopolysaccharide-Induced Endothelial Cell Hyperpermeability: Role of Mitochondrial Apoptotic Signaling Pathway," Academic Surgical Congress Meeting, Las Vegas, Nevada (February 2012).

24. Kuhlman MS, Meyer MA, Krupinski EA. "Direct Reporting of Results to Patients: The Future of Radiology?," Annual Meeting of the Radiologic Society of North America, Chicago Illinois (November 2011).

25. Incidental Findings on Magnetic Resonance Imaging (MRI) of the Chest in Patients Undergoing Pulmonary Embolism Evaluation Michelle Hershman, MD, Jason Anderson, MD, Isabel Oliva, MD, Diana Palacio, MD

26. Safety guidelines for MRI Imaging in pregnant patients, Jason Anderson for the RSNA Conference November 2015

27. Accuracy of Digital Breast Tomosynthesis for Depicting Breast Cancer Subgroups in a UK Retrospective Reading Study (TOMMY Trial) Fiona J. Gilbert, Lorraine Tucker, Maureen G. C. Gillan, Paula Willsher, Julie Cooke, Karen A. Duncan, Michael J. Michell, Hilary M. Dobson, Yit Yoong Lim, Tamara Suaris, Susan M. Astley, Oliver Morrish, Kenneth C. Young, Stephen W. Duffy Radiology, Dec 2015, Vol. 277:697–706, Journal club presentation Nick Cassuto
28. Covington MF, Kuo PH. Hidden cost of cancer attributable to CT scans. Accepted for presentation at ARRS 2016.
29. Covington MF, Choudhary G, Kuo PH. Optimizing nuclear pleuroperitoneal shunt imaging. Accepted for presentation at ARRS 2016, Los Angeles, CA.
30. *Dystrophic calcification of the upper cervical spine: an interesting case presentation.* Hannallah, J., Taljanovic, M. *International Skeletal Society Members Meeting.* Sep. 3-6, 2016. Paris, France.
31. Pericardial effusion in a setting of bacterial endocarditis. Haramrit Hansra Department of Medical Imaging Scholarly Day May 2016
32. *Left-sided Innominate Artery Arising From The Main Pulmonary Artery With A Right-sided Aortic Arch And Tetralogy Of Fallot-Bryce D. Olsen, DO, Michelle Hershman, MD, Scott Klewer, MD, Michael D. Seckeler, MD, MSc, Dorothy Gilbertson-Dahdal, MD.* Department of Medical Imaging Scholarly Day May 2016
33. Incidental Findings on Magnetic Resonance Imaging (MRI) of the Chest in Patients Undergoing Pulmonary Embolism Evaluation Michelle Hershman, MD, Jason Anderson, MD, Isabel Oliva, MD, Diana Palacio, MD
34. *Comparison of Contrast Enhanced MRI versus Hepatobiliary Scintigraphy in the Diagnosis of Chronic Cholecystitis- Philip Ho, MD; Seung Hur, MD; Bobby Kalb, MD; Iva Petkovska, MD; Hina Arif Tiwari, MD; Ferenc Czeyda-Pommersheim, MD; Diego Martin MD, PhD, James Costello MD, PhD .* Presentation at SAR (Society of Abdominal Radiology Meeting March 2016 Hawaii) and our Department Scholarly Day May 2016
35. CT Screening for Lung Cancer: Nonsolid Nodules in Baseline and Annual Repeat Rounds David F. Yankelevitz, Rowena Yip, James P. Smith, Mingzhu Liang, Ying Liu, Dong Ming Xu, Mary M. Salvatore, Andrea S. Wolf, Raja M. Flores, Claudia I. Henschke, As the Writing Committee for The International Early Lung Cancer Action Program Investigators Group Radiology, Nov 2015, Vol. 277:555–564 Stephen Johnston Journal Club presentation
36. QI project is to educate incoming interns on medical imaging study modalities and their specific applications. Tamara Lundeen QI project.
37. High-Risk Coronary Plaque at Coronary CT angiography is associated with Nonalcoholic Fatty Liver Disease, Independent of Coronary Plaque and Stenosis Burden: Results from the ROMICAT II Trial. Chris Miller Journal Club presentation.

38. Contrast Reaction Basic Life Support Kit in Outpatient Diagnostic–Emily Nia, Dorothy Gilbertson-Dahdal MD. Presentation at the 2015 ASER meeting and our Department Scholarly Day May 2016

39. Tumor Seeding Along Biopsy Tract. Viral Patel Presentation at our Department Scholarly Day May 2016

40. Accuracy of MR imaging – estimated Proton Density Fat Fraction for Classification of Dichotomized Histologic Steatosis Grades in Nonalcoholic Fatty Liver Disease. Sowby, James Journal Club presentation

41. Accurate Diagnosis of Fibromas and Fibrothecomas using Advanced MRI Techniques, Electronic Educational Poster, Society of Abdominal Radiology (March 13-18, 2016) Sowby, James

42. Workflow Analysis and Redesign for outpatient MRI Scans Performed at the Academic Medical Center-: Wyatt Unger MD, Alex Wallace, Clint Jokerst MD, Diego Martin MD

43. Physician Knowledge, attitudes and recommendations regarding lactation in patients undergoing contrast-enhanced imaging studies. Winsor, Kimberly