

Curriculum Vitae and Resume Summary Table of Contents

Christopher J. Roth, MD, MMCI, FACR, FSIIM

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Christopher J. Roth, MD, MMCI, FACR, FSIM: Summary

Current Roles:

1. Physician Vice President, Duke Health Imaging Service Line
2. Director of Imaging Informatics Strategy at Duke Health
3. Professor of Radiology at Duke University School of Medicine, with a specialty of neuroradiology,

Former Roles:

1. Interim Chief Medical Officer, Duke Lake Norman Hospital
2. Vice Chair in the Department of Radiology for IT and Informatics, Duke University

Clinical Activities: Dr. Roth's clinical work focuses on diagnostic neuroradiology CT and MRI, as well as interventional spine pain procedures and biopsies. In calendar year 2024, Dr. Roth averaged 103 work relative value units (RVUs) per diagnostic workday, above departmental and national averages. Dr. Roth has not been cited in a malpractice case in his more than fifteen years of clinical practice and demonstrates excellent [online reviews](#).

Imaging Administrative Leadership: As Physician Vice President of Duke Health's Imaging Service Line, and alongside an Administrative Vice President dyad partner, Dr. Roth is responsible and accountable for strategies and operations for clinical and operational excellence, volume growth, patient access, quality and safety, people, as well as revenue cycle and capital outlays. Dyad has 8 direct reports.

Informatics Leadership: Fifteen years of informatics leadership by Dr. Roth has included more than 200 national and international informatics lectures and numerous peer-reviewed publications. He is a recognized leader in the field, contributing to various national organizations such as the American College of Radiology (ACR), Radiological Society of North America (RSNA), the Society for Imaging Informatics in Medicine (SIIM), and the Healthcare Information and Management Systems Society (HIMSS). His work focuses on enterprise imaging technology and operational integration strategies, standards development, governance, and artificial intelligence.

Hospital Leadership: In serving as Interim Chief Medical Officer at the 123-bed Duke Lake Norman Hospital after hospital acquisition, Dr. Roth oversaw clinical excellence, quality and safety, facility compliance, peer review, FPPE-OPPE, credentialing, patient experience, legacy hospital policy and standard operating procedure revision, bylaws revisions, and risk management. He was involved in physician recruiting, access and growth, pre-installation planning and go live support for Epic EHR, restructuring the quality and safety department, and culture development. Had 10 direct reports.

Additional Activities: Dr. Roth performs approximately one expert witness engagement per year in neuroimaging or informatics, has served as an informatics consultant for four corporate services, and provides industry partner and health system paid and pro bono consulting.

Christopher J. Roth, MD, MMCI, FACR, FSIIM: CV

Contacts:

christopher.roth@duke.edu. 919.451.8918. [LinkedIn](#). [X](#). [Duke website](#).

Current Duke Health Positions and Appointments:

1. Professor of Radiology, Division of Neuroradiology
2. Physician Vice President, Imaging Service Line
 - Since 10/2022.
 - Reports to: Greg Pauly, Group President of Acute Care Services for Duke University Health System and Vice Dean of Clinical and Academic Integration for Duke University School of Medicine, and Matt Barber, President of Duke Health Integrated Practice.
3. Department of Radiology Vice Chair Information Technology and Clinical Informatics.
 - Since January 1, 2014. Served as Associate Chair June 1, 2011-December 31, 2013 before Vice Chair promotion.
 - Reports to Erik Paulson, Department of Radiology Chairman.
4. Director of Imaging Informatics Strategy.
 - Since June 14, 2012.
 - Reports to Eric Poon, CHIO.

Ended Duke Health Positions:

1. Interim Chief Medical Officer, Duke Health Lake Norman Hospital
 - April 1, 2025 - July 1-2025.
 - Reported to Kristie Barazsu, President and Chief Operating Officer.

Medical Licensure:

North Carolina Medical Board License #128339 2008-00202.

Specialty Certification(s) and Dates:

1. ABMS American Board of Radiology:
 - a. Radiology: General Certificate #57398. Issued June 3, 2009.
 - b. Neuroradiology: Certificate of Added Qualification. Issued October 18, 2012.
 - c. Parts I-IV Maintenance of Certification complete or on track as of this writing.
2. ABMS American Board of Preventative Medicine:
 - a. Clinical Informatics: Subspecialty Certificate #70329. Issued January 1, 2014.
 - b. Parts I-IV Maintenance of Certification complete or on track as of this writing.

Date and Place of Birth:

June 23, 1977, Windsor, Ontario, Canada.

Citizen of:

United States.

Education:

Location	Degree	Graduation Date
Belle River District High School Belle River, Ontario, Canada	High School Diploma	June 1996
University of Michigan Ann Arbor, Michigan	Bachelor of Science	April 2000
University of Michigan Ann Arbor, Michigan	Medical Doctorate	June 2004
Duke University Fuqua School of Business Durham, North Carolina	Masters of Management in Clinical Informatics (1.5 years: ½ business school; ½ informatics)	May 2011

Professional Training and Academic Appointments:

Position/Title	Institution	Dates
Transitional Year	St. John Hospital, Detroit, MI	July 2004-June 2005
Radiology Residency	Duke University, Durham, NC	July 2005-June 2009
Chief Radiology Resident	Duke University, Durham, NC	April 2008-March 2009
Neuroradiology Fellow	Duke University, Durham, NC	July 2009-June 2010
Neuroradiology Faculty	Durham VA Medical Center	July 2010-May 2023
Assistant Professor of Neuroradiology	Duke University, Durham, NC	July 2010-November 2017
Faculty	Duke Center for Health Informatics, Durham NC	June 2011-current
Associate Professor of Neuroradiology	Duke University, Durham, NC	December 2017-June 2022
Professor of Neuroradiology	Duke University, Durham, NC	July 2022-current

Publications:

Refereed Journals:

1. **Roth C**, Jacobson J, Jamadar D, Caoili E, Morag Y, Housner J. [Quadriceps fat pad signal intensity and enlargement on MRI: prevalence and associated findings](#). AJR Am J Roentgenol. 2004 Jun;182(6):1383-7. doi: 10.2214/ajr.182.6.1821383. PMID: 15149978.
2. **Roth CJ**, Weadock WJ, Dipietro MA. [A novel application of the MIRC repository in medical education](#). J Digit Imaging. 2005 Jun;18(2):85-90. doi: 10.1007/s10278-004-1907-4. PMID: 15827829.
3. **Roth C**, Sneider M, Bogot N, Todd M, Cronin P. [Dependent venous contrast pooling and layering: a sign of imminent cardiogenic shock](#). AJR Am J Roentgenol. 2006 Apr;186(4):1116-9. doi: 10.2214/AJR.04.1850. PMID: 16554589.
4. **Roth CJ**, Boll DT, Chea YW, Wall LK, Merkle EM. [Implementation of graphic user interface screen capture solution for workflow assessment of abdominal MR examinations valuable tool to analyze discrepancies in expected and experienced MR table time](#). Acad Radiol. 2009 Oct;16(10):1286-91. doi: 10.1016/j.acra.2009.05.009. PMID: 19596590.
5. **Roth CJ**. [The national quality forum: how common sense becomes policy](#). J Am Coll Radiol. 2010 Apr;7(4):309-11. doi: 10.1016/j.jacr.2009.12.009. PMID: 20362951.
6. **Roth CJ**, Boll DT, Wall LK, Merkle EM. [Evaluation of MRI acquisition workflow with lean six sigma method: case study of liver and knee examinations](#). AJR Am J Roentgenol. 2010 Aug;195(2):W150-6. doi: 10.2214/AJR.09.3678. PMID: 20651175.
7. Larson PA, Pyatt RS Jr, Grimes CK, Abudujeh HH, Chin KW, **Roth CJ**. [Getting the most out of RADPEER™](#). J Am Coll Radiol. 2011 Aug;8(8):543-8. doi: 10.1016/j.jacr.2010.12.018. PMID: 21807347.
8. Cornelius RS, Martin J, Wippold FJ 2nd, Aiken AH, Angtuaco EJ, Berger KL, Brown DC, Davis PC, McConnell CT Jr, Mechtler LL, Nussenbaum B, **Roth CJ**, Seidenwurm DJ; American College of Radiology. [ACR appropriateness criteria sinonasal disease](#). J Am Coll Radiol. 2013 Apr;10(4):241-6. doi: 10.1016/j.jacr.2013.01.001. PMID: 23420025.
9. Pierce T, Kranz PG, **Roth C**, Leong D, Wei P, Provenzale JM. [Use of apparent diffusion coefficient values for diagnosis of pediatric posterior fossa tumors](#). Neuroradiol J. 2014 Apr;27(2):233-44. doi: 10.15274/NRJ-2014-10027. PMID: 24750714.
10. McConnell CT Jr, Wippold FJ 2nd, Ray CE Jr, Weissman BN, Angevine PD, Fries IB, Holly LT, Kapoor BS, Lorenz JM, Luchs JS, O'Toole JE, Patel ND, **Roth CJ**, Rubin DA. [ACR appropriateness criteria management of vertebral compression fractures](#). J Am Coll Radiol. 2014 Aug;11(8):757-63. doi: 10.1016/j.jacr.2014.04.011. PMID: 24935074.
11. Abujudeh H, Pyatt RS Jr, Bruno MA, Chetlén AL, Buck D, Hobbs SK, **Roth C**, Truwit C, Agarwal R, Kennedy ST, Glenn L. [RADPEER peer review: relevance, use, concerns, challenges, and direction forward](#). J Am Coll Radiol. 2014 Sep;11(9):899-904. doi: 10.1016/j.jacr.2014.02.004. PMID: 24842585.
12. Moriarty JM, Bandyk DF, Broderick DF, Cornelius RS, Dill KE, Francois CJ, Gerhard-Herman MD, Ginsburg ME, Hanley M, Kalva SP, Kanne JP, Ketani LH, Majdalany BS, Ravenel JG, **Roth CJ**, Saleh AG, Schenker MP, Mohammed TL, Rybicki FJ. [ACR Appropriateness Criteria Imaging in the Diagnosis of Thoracic Outlet Syndrome](#). J Am Coll Radiol. 2015 May;12(5):438-43. doi: 10.1016/j.jacr.2015.01.016. PMID: 25824254.
13. **Roth CJ**, Angevine PD, Aulino JM, Berger KL, Choudhri AF, Fries IB, Holly LT, Kendi AT, Kessler MM, Kirsch CF, Luttrull MD, Mechtler LL, O'Toole JE, Sharma A, Shetty VS, West OC, Cornelius RS,

- Bykowski J. [ACR Appropriateness Criteria Myelopathy](#). J Am Coll Radiol. 2016 Jan;13(1):38-44. doi: 10.1016/j.jacr.2015.10.004. PMID: 26653797.
14. **Roth CJ**, Lannum LM, Persons KR. [A Foundation for Enterprise Imaging: HIMSS-SIIM Collaborative White Paper](#). J Digit Imaging. 2016 Oct;29(5):530-8. doi: 10.1007/s10278-016-9882-0. PMID: 27245774.
 15. Shetty VS, Reis MN, Aulino JM, Berger KL, Broder J, Choudhri AF, Kendi AT, Kessler MM, Kirsch CF, Luttrull MD, Mechtler LL, Prall JA, Raksin PB, **Roth CJ**, Sharma A, West OC, Wintermark M, Cornelius RS, Bykowski J. [ACR Appropriateness Criteria Head Trauma](#). J Am Coll Radiol. 2016 Jun;13(6):668-79. doi: 10.1016/j.jacr.2016.02.023. PMID: 27262056.
 16. **Roth CJ**, Lannum LM, Joseph CL. [Enterprise Imaging Governance: HIMSS-SIIM Collaborative White Paper](#). J Digit Imaging. 2016 Oct;29(5):539-46. doi: 10.1007/s10278-016-9883-z. PMID: 27301709.
 17. Cram D, **Roth CJ**, Towbin AJ. [Orders- Versus Encounters-Based Image Capture: Implications Pre- and Post-Procedure Workflow, Technical and Build Capabilities, Resulting, Analytics and Revenue Capture: HIMSS-SIIM Collaborative White Paper](#). J Digit Imaging. 2016 Oct;29(5):559-66. doi: 10.1007/s10278-016-9888-7. PMID: 27417208.
 18. **Roth CJ**, Lannum LM, Dennison DK, Towbin AJ. [The Current State and Path Forward For Enterprise Image Viewing: HIMSS-SIIM Collaborative White Paper](#). J Digit Imaging. 2016 Oct;29(5):567-73. doi: 10.1007/s10278-016-9887-8. PMID: 27473474.
 19. Towbin AJ, **Roth CJ**, Bronkalla M, Cram D. [Workflow Challenges of Enterprise Imaging: HIMSS-SIIM Collaborative White Paper](#). J Digit Imaging. 2016 Oct;29(5):574-82. doi: 10.1007/s10278-016-9897-6. PMID: 27527613; PMCID: PMC5023531.
 20. Patel BN, Lopez JM, Jiang BG, **Roth CJ**, Nelson RC. [Image-Rich Radiology Reports: A Value-Based Model to Improve Clinical Workflow](#). J Am Coll Radiol. 2017 Jan;14(1):57-64. doi: 10.1016/j.jacr.2016.07.018. PMID: 27692807.
 21. Wildman-Tobriner B, Thorpe MP, Said N, Ehieli WL, **Roth CJ**, Jaffe TA. [Moving Radiology Workflow to the Electronic Health Record: Quantitative and Qualitative Experience From a Large Academic Medical Center](#). Acad Radiol. 2020 Feb;27(2):253-259. doi: 10.1016/j.acra.2019.02.006. PMID: 30876710.
 22. Towbin AJ, **Roth CJ**, Petersilge CA, Garriott K, Buckwalter KA, Clunie DA. [The Importance of Body Part Labeling to Enable Enterprise Imaging: A HIMSS-SIIM Enterprise Imaging Community Collaborative White Paper](#). J Digit Imaging. 2021 Feb;34(1):1-15. doi: 10.1007/s10278-020-00415-0. PMID: 33481143.
 23. Clark-Randall A, Halpern DJ, Taylor J, **Roth CJ**, Gupta RT, Woodall J, Shah KP. [Implementation of a Radiology Utilization Dashboard Yields Significant Cost Savings in a Large Primary Care Network](#). J Am Coll Radiol. 2021 Jul;18(7):947-950. doi: 10.1016/j.jacr.2021.02.015. PMID: 33745853.
 24. **Roth CJ**, Clunie DA, Vining DJ, Berkowitz SJ, Berlin A, Bissonnette JP, Clark SD, Cornish TC, Eid M, Gaskin CM, Goel AK, Jacobs GC, Kwan D, Luviano DM, McBee MP, Miller K, Hafiz AM, Obcemea C, Parwani AV, Rotemberg V, Silver EL, Storm ES, Tcheng JE, Thullner KS, Folio LR. [Multispecialty Enterprise Imaging Workgroup Consensus on Interactive Multimedia Reporting Current State and Road to the Future: HIMSS-SIIM Collaborative White Paper](#). J Digit Imaging. 2021 Jun;34(3):495-522. doi: 10.1007/s10278-021-00450-5. PMID: 34131793.
 25. Schwartz FR, **Roth CJ**, Boardwine B, Hardister L, Thomas-Campbell S, Lander K, Montoya C, Jaffe TA. [Electronic Health Record Closed-Loop Communication Program for Unexpected Nonemergent Findings](#). Radiology. 2021 Oct;301(1):123-130. doi: 10.1148/radiol.2021210057. PMID: 34374592.

26. Battle JC, Dreyer K, Allen B, Cook T, **Roth CJ**, Kitts AB, Geis R, Wu CC, Lungren MP, Patti J, Prater A, Rubin D, Halabi S, Tilkin M, Hoffman T, Coombs L, Wald C. [Data Sharing of Imaging in an Evolving Health Care World: Report of the ACR Data Sharing Workgroup Part 1: Data Ethics of Privacy, Consent, and Anonymization](#). J Am Coll Radiol. 2021 Dec;18(12):1646-1654. doi: 10.1016/j.jacr.2021.07.014. PMID: 34607754.
27. Battle JC, Dreyer K, Allen B, Cook T, **Roth CJ**, Kitts AB, Geis R, Wu CC, Lungren MP, Patti J, Prater A, Rubin D, Halabi S, Tilkin M, Hoffman T, Coombs L, Wald C. [Data Sharing of Imaging in an Evolving Health Care World: Report of the ACR Data Sharing Workgroup Part 2: Annotation, Curation, and Contracting](#). 2021 Dec;18(12):1655-1665. doi: 10.1016/j.jacr.2021.07.015. PMID: 34607753.
28. Juluru K, Shih HH, Murthy KN, Elnajjar P, El-Rowmeim A, **Roth C**, Genereaux B, Fox J, Siegel E, Rubin DL. [Integrating AI Algorithms into the Clinical Workflow](#). Radiology: Artificial Intelligence 3(6) 2021. doi: 10.1148/ryai.2021210013. PMID: 34870216.
29. Choi HH, Kotsenas AL, Chen JV, Bronsky C, **Roth CJ**, Kohli MD. [Multi-Institutional Experience with Patient image Access through EHR Patient Portals](#). J Digit Imaging. 2022 Apr;35(2):320-326. doi: 10.1007/s10278-021-00565-9. PMID: 35022926.
30. **Roth CJ**, Harten HH, Dewey M, Dennison DK. [How Image Exchange Breaks Down: The Image Library Perspective](#). J Digit Imaging. 2022 Aug 1. doi: 10.1007/s10278-022-00684-x. PMID: 35915366.
31. Daye D, Wiggins WF, Lungren MP, Alkasab T, Kottler N, Allen B, **Roth C**, Bizzo B, Durniak K, Spelman S, Brink J, Larson D, Dreyer K, Langlotz C. [Clinical AI Implementation in Radiology: Who Decides and How?](#) Radiology. 2022 Aug 2:212151. doi: 10.1148/radiol.212151. PMID: 35916673.
32. Berkowitz SJ, Kwan D, Cornish TC, Silver EL, Thullner KS, Aisen A, Bui MM, Clark SD, Clunie DA, Eid M, Hartman DJ, Ho K, Leontiev A, Luviano DM, O'Toole P, Parwani AV, Spereira NS, Rotemberg V, Vining DJ, Gaskin CM, **Roth CJ**, Folio LR. [Interactive Multimedia Reporting Technical Considerations: HIMSS-SIIM Collaborative White Paper](#). J Digit Imaging. 2022 Aug 12. doi: 10.1007/s10278-022-00658-z. PMID: 35962150.
33. **Roth CJ**, Petersilge C, Clunie D, Towbin AJ, Cram D, Primo R, Li X, Berkowitz SJ, Barnosky V, Krupinski EA. [HIMSS-SIIM Enterprise Imaging Community White Papers: Reflections and Future Directions](#). J Imaging Inform Med. 2024 Apr;37(2):429-443. doi: 10.1007/s10278-024-00992-4. PMID: 38336948.
34. **Roth CJ**, Petersilge CA, Cram D, Garriott K, Lannum L, Carey CK, Medina N, Kwiatkoski T, Whitfill JT, Towbin, AJ. [Celebrating 10 Years of the HIMSS-SIIM Enterprise Imaging Community and Enterprise Imaging Informatics](#). J Imaging Inform Med. 2024 Jun 10. doi: 10.1007/s10278-024-01141-7. PMID: 38858262.
35. Goetz KE, Boland MV, Chu Z, Reed AA, Clark SD, Towbin AJ, Purt B, O'Donnell K, Bui MM, Eid M, **Roth CJ**, Luviano DM, Folio LR. [Ocular Imaging Challenges, Current State, and a Path to Interoperability: A HIMSS-SIIM Enterprise Imaging Community Whitepaper](#). J Imaging Inform Med. 2024 Oct 01. doi: 10.1007/s10278-024-01261-0. PMID: 39354293.
36. Triana B, Wiggins WF, Befera N, **Roth C**, Cline B. [Proof-of-Concept Prompted Large Language Model for Radiology Procedure Request Routing](#). J Vasc Interv Radiol. 2025 Mar 24:S1051-0443(25)00249-0. doi: 10.1016/j.jvir.2025.03.012. Epub ahead of print. PMID: 40139433.

Non-Refereed Publications:

1. Roth CJ, Olfati S, Jordan W, Labajetta E, Montoya C, Boardwine B, Hall TL, Hopkins T. 82S. Am Journal of Medical Quality, 35(1s). In, Latimer K, The Art of Care: A Report on the 2019 Vizient Connections Education Summit. March/April 2020.

Annual Meeting Educational Exhibits/Posters:

1. **Roth CJ**, Boll DT, Wall LK, Merkle EM: A Lean Six Sigma case study for MR acquisition workflow evaluation: similar MR table time liver and knee examinations with differences in complexity and value added time revealed. American College of Radiology Annual Meeting and Chapter Leadership Conference, May 15-19, 2010, Washington, D.C.
2. Javan R, Jeun BS, **Roth C**. An All-Encompassing Multi-Specialty Incidentaloma Decision Support Tool For the Daily Practice of Radiology. Applied Science Presentation. Radiological Society of North America, 2013 Annual Meeting, Dec 1-6, Chicago, Illinois.
3. **Roth CJ**, Labajetta E, Montoya C, Jordan W, Olfati S. Picture This: Ensuring High Value Imaging at Duke Health. Vizient Connections Education Summit, September 16, 2019, Las Vegas, Nevada.
4. **Roth CJ**, Jordan W, Olfati S. Improving MRI Acquisition Time at Duke Cancer Center. The Health System Process Improvement Conference, February 26, 2020, Savannah, Georgia.
5. Schwartz F, **Roth CJ**, Boardwine B, Hardister L, Thomas-Campbell S, Lander K, Montoya C, Jaffe T. Electronic Health Record Integrated Closed Loop Communication Program for Unexpected Non-Emergent Findings - First Results. Radiological Society of North America 2020 Annual Meeting. November 29-December 3, 2020. Virtual.

Book Chapters:

1. **Roth C**, Rodeo S: Indications and Techniques for Meniscus Repair. In Simonian P, Cole B, Bach B (ed): Sports Injuries of the Knee: Surgical Approaches. Thieme Medical Publishers. 2006, 8-16.
2. **Roth CJ**: Hypertrophic Obstructive Cardiomyopathy. In, Vinson E, Provenzale J, Nelson R: Duke Radiology Case Review: Imaging, Differential Diagnoses, and Discussion. Lippincott Williams & Wilkins Publishers. 2011. 614-615.
3. Mangrum WI, **Roth CJ**, Song AW, Voyvodic JT, Petrella JR: Chapter 17 Functional MRI. In, Mangrum W, Christianson K, Duncan S, Hoang P, Song AW, Merkle E. Duke Review of MRI Principles: Case Review Series. Mosby Publishers. 2012. 265-277.
4. Hood SJ, Mangrum WI, **Roth CJ**, Song AW, Voyvodic JT, Petrella JR: Functional Magnetic Resonance Imaging. In Mangrum W, Hoang Q, Amrhein TJ, Duncan SM, Maxfield CM, Merkle E, Song AW. Duke Review of MRI Physics: Case Review Series, 2nd Ed. Elsevier Publishers. 2019. 217-231.
5. **Roth CJ**. [User Governance](#). In: Branstetter IV B.F. (eds) Practical Imaging Informatics. Springer, New York, NY. 2021. 307-326.

Selected Abstracts:

1. Rodeo S, Kim H, Dynybil C, Kawamura S, **Roth C**, and Ying L, Variations in Tendon-to-Bone Healing in an Animal Model of Graft-Tunnel Motion: An Experimental Study in Rabbits. Presented at 2003 American Orthopedics Society for Sports Medicine, San Diego, CA.
2. **Roth C**, Jacobson J, Jamadar D, Caoili E, Morag Y, Housner J: Quadriceps Fat Pad Signal Intensity and Enlargement at MRI: Prevalence and Associated Findings. Presented at American Roentgen Ray Society Meeting. 2004. Miami, FL.
3. **Roth C**, Petrella J, Voyvodic J: Susceptibility and Motion Artifact: Pitfalls in Speech Lateralization by Functional MRI. Presented at 2009 American Society of Functional Neuroradiology Meeting, San Antonio, TX.

4. **Roth C**, Rusincovitch SA, Horvath MM, Brinson S, Evans S, Shang HC, Ferranti JM. [DEDUCE Clinical Text: An Ontology-based Module to Support Self-Service Clinical Notes Exploration and Cohort Development](#). AMIA Jt Summits Transl Sci Proc. 2013 Mar 18;2013:227. PMID: 24303270.
5. Patel B, Lopez J, **Roth C**, Nelson R. Image-Rich Radiology Reports: A Value-Based Model to Improve Clinical Workflow. Presented at 2015 Radiological Society of North America by Patel B. December 1, 2015. Chicago, IL.
6. Choi HH, Kotsenas AL, Chen JV, Bronsky C, **Roth CJ**, Kohli MD. Patient image access through electronic health record patient portals: A multi-institutional experience. Presented at 2021 RSNA by Choi H. November 28, 2021. Chicago, IL.

Editorials, Position, and Background Papers: Technical Development Publications:

- Kwan D, Silver, E, Ho K, Berkowitz S, Thullner K, **Roth CJ**. [Integrating the Healthcare Enterprise \(IHE\) Interactive Multimedia Reporting \(IMR\) Profile](#). IMR includes integrating images and video, graphs, tables, educational hyperlinks, typographical emphases and schematic diagrams into radiologist reports. The profile outlines informatics standard transactions for industry developers and researchers to use in integrating the necessary systems (EHR, PACS, routers/gateways, resulting systems, etc) for IMR creation, maintenance, storage, and sharing. Profile voted and prioritized to be completed 2021-2022 RSNA IHE cycle ending summer 2022.
- Genereaux B, O'Donnell K, Bialecki, B, Diedrich K, **Roth CJ**, Schroeder A, Tenenholtz N, Younis K, Zachmann H. [Integrating the Healthcare Enterprise \(IHE\) Artificial Intelligence Interoperability in Imaging white paper](#). The 153 page white paper of imaging standards based interoperability, use cases, and development directions for AI clinical, technical, and industry. AI interoperability white paper voted and prioritized for creation in 2020-2021 RSNA IHE cycle.
- O'Donnell K, Ho K, Silver E, **Roth CJ**, Cram D, Towbin A, Persons K, Lipton P. [Integrating the Healthcare Enterprise \(IHE\) Encounter-Based Imaging Workflow \(EBIW\) Profile](#). EBIW is the method for device integration for image and metadata capture, report linkage, and data transfer between end user devices such as point of care ultrasounds/handheld cameras/endoscopes, storage archives, and electronic patient records. [The profile](#) outlines required informatics standard transactions for industry developers and researchers to use in integrating the platforms and devices. Profile voted and prioritized for creation in 2016-2017 and 2017-2018 IHE cycles.

Consultant Appointments:

Corporate Advisories:

1. Former Chair of Medical Advisory Board and stock options holder, TeraMedica Inc. March 2013 - May 2015. Advisory structure disbanded and stock options liquidated for compensation during TeraMedica corporate acquisition by FUJIFILM. Compensated speaker arrangements, [marketing material](#) development, design recommendations, usability feedback, and innovation.
2. Member, Multimedia Reporting Advisory Committee, Nuance. January - July 2015. Committee disbanded when functionality brought to market. Chair Keith Berling, Nuance. Uncompensated design recommendations and usability feedback.
3. Member, Enterprise Imaging Keystone Summit Leadership Team. January - June 2017. Chair, Monique Rasband, KLAS Research. Four leadership member group design and development of measurement vehicle/white paper for use in guiding enterprise imaging benchmarking. Preparation of the Enterprise Imaging Keystone Summit and White Paper in Park City, UT. [Enterprise Imaging Measurement, Functionality, and Keys to Success White Paper](#).

4. Member and Speaker, KLAS Enterprise Imaging Cornerstone Summit Leadership Team. November 2017 - April 2018. Chair, Monique Rasband, KLAS Research. Prepared KLAS alongside three other subject matter experts to create survey and KLAS Cornerstone Summit White Paper: [An Operational Approach to Driving Enterprise Imaging Outcomes](#).
5. Member, Epic Discrete Data Workgroup, February 2021 - October 2022. Chair Jonathan Sepulveda. Uncompensated Epic discrete data capture and use roadmap development.
6. Member, Epic Radiologist Development Council, March 2014 - current. Chairs Leah Johnson and Keenan McNamara. Uncompensated development visioning, design recommendations, and usability feedback for future innovations of Epic's Foundation system.
7. Consultant, Microsoft. March 2025 - current. Chair Stephanie Bogdan, Microsoft. Compensated graphic user interface design feedback for Microsoft radiology products.
- Ad hoc uncompensated advisory conversations about product offerings and roadmaps with TeraRecon, Nuance, Visage, GE, Microsoft, and other current and former Duke partners.

Uncompensated Peer "How Does Duke Do It?" Site Visits and Informatics Calls:

1. Integris Health (Oklahoma): Vendor neutral archives and PACS best practices. Dax Ewbank (Enterprise Architect). December 7, 2012.
2. Wake Radiology (North Carolina): Vendor neutral archives and PACS best practices. Dr. Bill Way. March 11, 2014.
3. Mayo Clinic (Arizona, Florida, Minnesota): Epic best practices. Drs. Amy Kotsenas, Steve Langer, Joe Accurso, Ken Fetterly and team. November 10, 2014.
4. Johns Hopkins (Maryland): Epic best practices. Dr. Ihab Kamel and team. February 24, 2015 and March 18, 2015.
5. Johns Hopkins Aramco (Saudi Arabia) site visit to Duke: Epic best practices. Dr. Mustapha Fleet and team. May 7, 2015.
6. Sutter Health (California): Enterprise imaging best practices best practices. Drs. Jason Wiesner, Derk Purcell and team. May 10, 2016.
7. University of Colorado: Image sharing best practices. Dr. Peter Sachs and team. July 14, 2016.
8. Akron Children's (Ohio): Vendor neutral archives and governance best practices. Dr. Amy Maneker and team. August 12, 2016.
9. Singapore General Hospital. Enterprise Imaging best practices. Drs. Santhosh Raj Seela Raj, Tan Bien Soo, Chan Lai Peng, Loo Chian Min, Andrew Tan and team. October 6, 2016.
10. Cincinnati Children's Hospital. How to structure an enterprise imaging division and IT support. Dr. Alex Towbin. January 12, 2017.
11. Memorial Care Health System (Orange County, California). How to meet PAMA legislation and 2017 Medicare Physician Fee Schedule requirements for imaging decision support. Dr. Harris Stutman and team. February 6, 2017.
12. Vidant Health (Greenville, North Carolina). How to capture, store, and index point of care ultrasound in Epic. Dr. David Michael and team. February 16, 2017.
13. Great Ormond Street Hospital (London, England). Vendor neutral archiving for non-DICOM images. Drs. Shankar Sridharan, Chris Jephson, Robert Robinson, and team. March 7, 2017.
14. University of Washington. Epic Radiant transition and enterprise support. Drs. Martin Gunn and Bill Shuman and team. March 27, 2017.
15. Mission Health (Asheville, North Carolina). Clinical decision support implementation. Dr. Bryon Dickerson and team. April 19, 2017.

16. Cedars Sinai Medical Center (Santa Monica, California). Enterprise imaging governance. Dr. Rick Riggs and team. August 10, 2017.
17. Province of Alberta, Canada. Enterprise imaging governance. Raechel Wright and team. December 18, 2017.
18. University of Otago (Dunedin, New Zealand). Vendor neutral archiving clinical workflow and data flow. Dr. Andrew Foster and team. July 19, 2018.
19. University of Colorado. Enterprise PACS and VNA architecture. Dr. Peter Sachs and team. October 10, 2018.
20. University of New Mexico. Enterprise imaging resources. Jesse Bock. October 16, 2018.
21. University of Washington (Duke site visit). Epic Radiant deployment for radiology and enterprise imaging. Drs. Martin Gunn and William Shuman. November 5, 2018.
22. Caromont Health. Clinical decision support deployment. Drs. Ward Adcock, Doug Johnson, and Shadi Hijjawi. November 6, 2018.
23. Western Australia Health. Chris Bashall. Enterprise imaging governance. March 11, 2019.
24. University of California Irvine. Dr. Roozbeh Houshyar. Epic critical and unexpected findings management. March 27, 2019.
25. Department of Defense Uniformed Health Services. Dr. Roger Boodoo. United States Department of Defense enterprise imaging planning. August 29, 2019.
26. Massachusetts General Hospital. Dr. Tarik Alkasab. Clinical decision support structured indication requirement. October 30, 2019.
27. University of Washington. Epic radiologist workflow and efficiency. Drs. Martin Gunn, Mahmud Mossa-Basha, and team. November 7, 2019.
28. University of Massachusetts. Epic radiologist workflow and unexpected findings. Dr. Chris Sereni, and team. March 9, 2020.
29. University of California-San Diego. Epic radiologist workflow and Visage. Dr. Paul Murphy. June 17, 2020.
30. University of Vermont. Epic reading work lists with Visage PACS. Dr. Jay Kikut and team. August 4, 2020.
31. Thomas Jefferson University. Clinical decision support artificial intelligence deployment. Drs. Vijay Rao and Adam Flanders, and team. October 15, 2020.
32. University of Michigan. Clinical decision support artificial intelligence deployment. Dr. Ken Buckwalter and team. November 11, 2020.
33. St. Luke's (Idaho). Enterprise image capture, archiving, and viewing. Drs. Neeraj Soni and Terry Ribbens and team. February 3, 2021.
34. University of Vermont. Enterprise point of care ultrasound. Dr. Peter Weimersheimer and team. February 17, 2021.
35. Inova Fairfax. PACS consolidation. Drs. Marshall Mintz, Patrick Oliver, and Nitin Kumar and team. February 23, 2021.
36. University of North Carolina. Enterprise imaging governance. Dr. Ben Mervak. March 2, 2021.
37. Cleveland Clinic. Point of care imaging decision support artificial intelligence. Drs. Allison Weathers and Namita Gandhi. April 15, 2021.
38. McMaster University. EHR driven workflow. Drs. Kavita Dhamanaskar, Karen Finlay, John Donnellan, Christian van der Pol, and Nair Sabarinath. April 27, 2021.
39. University of Wisconsin. Enterprise imaging IT, informatics support, and strategy. Dr. Richard Bruce and team. August 26, 2021.

40. University of Cincinnati. Dr. Ram Chadalavada. Unexpected findings management. August 30, 2021.
41. Cleveland Clinic. Enterprise archive governance. Drs. Namita Gandhi. September 1, 2021.
42. Department of Defense Health Agency Enterprise Imaging Integrated Product Team. Eleven multi-specialty physicians. Imaging infrastructure planning. September 22, 2021.
43. Mayo Clinic. Cloud PACS migration and enterprise viewers. Dr. Amy Kotsenas and team. September 23, 2021.
44. University of Oregon Health Sciences. Enterprise imaging infrastructure. Dr. LP Riccelli and team. October 6, 2021.
45. Children's Hospital of Philadelphia. PACS implementation. Dr. Susan Sotardi, April 4, 2022.
46. Atrium Health-Wake Forest Baptist. PACS implementation. Dr. Jonathan Clemente. April 5, 2022.
47. University of Washington. Patient language radiology reports. Drs. Rahbar and Scott. April 27, 2022.
48. Providence Health. Epic driven radiologist workflow. Dr Whetstone, Ohanian, Kosydar, and team. April 28, 2022.
49. Baylor Scott & White. PACS implementation. Drs. Harold Sonnier and James Murchison. July 29, 2022.
50. Cleveland Clinic. Patient education and friendly reports. Drs. Chen and Karuppasamy. November 16, 2022.
51. Novant Health. PACS implementation and worklist design. Dr. Roy. March 6, 2023.
52. University of Washington. PACS implementation and worklist design. Drs. Rahbar and Cross. March 6, 2023.
53. Children's Hospital of Philadelphia. Enterprise imaging governance. Dr. Sotardi. April 14, 2023.
54. University of Massachusetts. Epic enterprise viewer integration. Dr. Steppacher. November 16, 2023.
55. University of Iowa. PACS implementation. Dr. David Kuehn. January 26, 2024.
56. Vanderbilt University. Home workstation architecture. Dr. Neal Patel (CIO). June 6, 2024.
57. Mount Sinai. Epic patient radiology self scheduling. Drs. Amish Doshi and David Mendelson, September 19, 2024.
58. SingHealth and Duke-NUS Singapore site visit. AI, governance, Epic design, enterprise imaging. Dr. Steven Wong with 11 person team. May 5-6, 2025.

Professional Awards and Special Recognitions:

Certifications and Special Training:

- Lean Six Sigma Green and Black Belt training. Raleigh, North Carolina. June 2009.
- Epic Physician Training. Verona, Wisconsin. August 4-5, 2011.
- Epic Radiant & Cardiant Fundamentals Training. Verona, Wisconsin. October 4-5, 2011.
- Information Technology Infrastructure Library (ITIL) Foundations Certification. Certificate #37661. Achieved 11/16/2012.
- Epic Analytics and Business Intelligence Training. Verona, Wisconsin, March 10-12, 2015.
- Imaging Informatics Professional (CIIP) of American Board of Imaging Informatics. Certificate ID #802724. Achieved 9/27/2013. Not renewed 12/31/2022.
- American College of Radiology, Radiology Leadership Institute (ACR RLI).
 - Level I - Leadership Fundamentals. Achieved 10/24/2015. Babson College, Wellesley, MA.
 - Level II - Leadership Proficiency. Achieved 11/17/2015. Babson College, Wellesley, MA.
- Professional in Healthcare Information and Management Systems (CPHIMS). Certificate # 700681784. Achieved 3/2/2016. Recertified 3/31/2019 and 3/31/2022 cycles. Expired 3/31/2025.

Awards and Recognitions:

- University of Michigan Football 1996-1999.
 - NCAA National Champions, 1997.
 - Big Ten Scholar Athlete 1997 and 1998.
 - Big Ten Football Champions, 1997 and 1998.
 - Letterwinner, 1998.
 - Rose Bowl Champions, 1998.
 - Fedex Orange Bowl Champions, 2000.
- Phi Beta Kappa, 2000.
- Roger Berg Award: Best Medical Student Entering Radiology. University of Michigan Medical School, 2004.
- E. Stephen Amis, Jr., M.D. American College of Radiology Fellow in Quality and Safety, 2009.
- Duke University Fuqua School of Business Fuqua Scholar, 2011.
 - Fuqua Scholar designation given to Top 2% of annual Fuqua School of Business graduating class.
- Association of University Radiologists (AUR) Faculty Development Program participant, 2013.
 - Nominated and funded by Chair for participation.
- DHTS CIO Coin awarded May 5, 2016.
 - Special recognition for extensive cross-specialty effort operationalizing Duke Health enterprise image sharing in obstetrics, cardiology, and telehealth.
- HIMSS Analytics Stage 7 awarded to Duke Health on June 14, 2016, reawarded February 12, 2020. HIMSS Stage 7 is the highest award given for enterprise electronic health record deployment, governance, and data driven decision making. 8% of United States ambulatory practices reach Stage 7.
 - Imaging Governance Committee practices (Dr. Roth Founder and Co-Chair) and Dr. Roth's imaging strategy called out by judges as one of eight important differentiators at Duke toward originally winning the award in 2016.
- 2016 Journal of Digital Imaging "Most Downloaded Paper" for **Roth CJ**, Lannum LM, Persons KR. [A Foundation for Enterprise Imaging: HIMSS-SIIM Collaborative White Paper](#). J Digit Imaging. 2016 Oct;29(5):530-8. doi: 10.1007/s10278-016-9882-0. PMID: 27245774.
- Befera N, Lagos Y, Short R, Roth CJ, Tailor T. Automated Generation of a Patient-centered Chest CT Report Utilizing Machine Learning. 2017 Society for Imaging Informatics in Medicine Innovation Challenge Finalist.
- DHTS CIO Coin awarded May 11, 2018.
 - Special recognition for leading especially complex and ultimately successful Epic driven workflow deployment (a DUHS DHTS High Visibility project).
- SIIM 2018 Annual Meeting Top Speaker by engagement.
- SIIM 2019 Annual Meeting Second Place Speaker by engagement (behind only keynote speaker).
- SIIM 2019 Annual Meeting highest ranked Favorite Speaker (chosen in 23 out of 285 responses, #1 out of 208 speakers).
- 2020 Radiology Business Journal Imaging Innovation Award to Duke Health Department of Radiology. Closing the Loop on Unexpected Findings: Improving Communication to Ensure Appropriate Follow-Up. Dr. Roth designed the electronic health record processes and was one of two senior authors on subsequent *Radiology* paper.
- DHTS CISO Coin awarded December 16, 2020.

- Special recognition for leadership on internal cybersecurity efforts, including cybersecurity rounding and phishing program.
- Tae Kwon Do black belts. Kicks Tae Kwon Do. Raleigh, NC.
 - First degree, with honors. April 2, 2022.
 - Second degree, with honors, April 15, 2023.
- 2021 Journal of Digital Imaging “Most Downloaded Paper” for Towbin AJ, **Roth CJ**, Petersilge CA, Garriott K, Buckwalter KA, Clunie DA. [The Importance of Body Part Labeling to Enable Enterprise Imaging: A HIMSS-SIIM Enterprise Imaging Community Collaborative White Paper](#). J Digit Imaging. 2021 Feb;34(1):1-15. doi: 10.1007/s10278-020-00415-0. PMID: 33481143.
- Inducted as Fellow of the College of the Society for Imaging Informatics in Medicine (SIIM) Fellows. FSIIM conferred June 9, 2022.
- Inducted as Fellow of the American College of Radiology. FACR conferred May 7, 2023.
- Member of Duke University Hospital Christmas ED Flood Response Team receiving Duke University Presidential Award, March 17, 2026.

Organizations and Participation:*National Service Organizations and Societies Participation: Current*

Org.	Committee	Role	Dates	Chair(s)
ACR	Informatics Commission	Member	3/2020-current	Christoph Wald
Intent and Outcome: Drive the informatics mission of the American College of Radiology.				
SIIM	Annual Meeting Program Committee	Chair	7/2020-6/2026 term	Self
Intent and Outcome: Responsible for development of Committee of ~25 informatics MDs and non-MDs imaging informatics professionals designing all aspects of SIIM Annual Meeting. Meeting attendance approximately 1,200-1,500. Tenure included sudden conversion of 2020 meeting to virtual format in four months, creation of the SIIM Global Track, delivering the SIIM AI Playground, and instituting several new initiatives toward speaker diversity through the Call for Proposals (0% of 2020 meeting program to >80% of 2025 program).				

National Service Organizations and Societies Participation: Ended

Org.	Committee	Role	Dates	Chair(s)
ACR	AMCLC Reference Committee	Member	2010 (one year)	AMCLC Staff
Intent and Outcome: Participated in NC ACR Councilor meetings.				
ACR	eRADPEER Committee	Member	6/2011-6/2014 (decommissioned)	Bob Pyatt
Intent and Outcome: Revised eRADPEER scoring system, revamped ACR's infrastructure for supporting eRADPEER for members, advocated for eRADPEER use.				
ACR	Committee for Imaging Health Policy and Economics Research	Member	2/2012-3/2013 (decommissioned)	Rich Duszak
Intent and Outcome: Participated in early discussions during the formation of ACR Harvey L. Neiman Health Policy Institute.				
ACR	Neuroradiology Appropriateness Committee	Member	4/2012-5/2015 (rotated off)	Becky Cornelius & Francis Wippold
Intent and Outcome: Participated in ACR AC development.				
ACR	PACS Reimbursement and Coding Workgroup	Member	7/2014-6/2015 (decommissioned)	Zeke Silva
Intent and Outcome: In response to CMS changing payments due to film to digital image evolution, group gathered PACS and associated workstation software, hardware, and environmental costs to re-submit for new CMS codes.				

ACR	Computer Assisted Reporting and Decision Support (CARDS)	Member	12/2014-5/2018 (decommissioned)	Tarik Alkasab
Intent and Outcome: Participated in standardized structured reporting terminology, formatting and XML code development for ACR curated Reporting and Data Systems (X-RADS).				
ACR	Managed Care Committee	Member	1/2014-1-2019 (rotated off)	Kathryn Keysor
Intent and Outcome: Group participation in ACR relationships and policy responses with third party payers.				
ACR	Informatics Summit	Co-Chair	2019 and 2020 (declined 2021 reappointment)	With Tessa Cook
Intent and Outcome: - Resurrected ACR Informatics Summit after 5 year hiatus. Designed annual meetings of ACR Data Science Institute and Informatics Commission in 2019 (live) and 2020 (virtual). 165 attendees in 2019 (first year back, full room capacity). 2020 had 265 live attendees on virtual. - Involved session design and focus planning, speaker invitations, logistics, and engaging with vendor sponsors. - Invited to return but declined citing conflict of interest optics (already was the informatics meeting chair at RSNA and SIIM).				
ACR	Clinical Decision Support Sub-Commission	Lead	3/2020-3/2023 (disbanded)	Self
Intent and Outcome: Serve as ACR Informatics Commission Liaison to Qualified Clinical Decision Support Mechanism (qCDSM) providers, and internal ACR departments. Education liaison between ACR AC development committees and industry qCDSMs.				
ACR	Cybersecurity Task Force	Member	8/2021-3/2022 (work completed)	Christoph Wald
Intent and Outcome: Data protection and cybersecurity education development for ACR members.				
ARBIR	Designing the Imaging Cockpit of the Future Workgroup	Member	8/2017 (brief working summit)	Renee Cruea
Intent and Outcome: One day invited working summit (proposed by my Chair, Erik Paulson) to outline the idealized environment, hardware, and software for radiology study interpretation.				
ESR	eHealth and Informatics Subcommittee	Member	7/2022-1/2025 (rotated off)	Elmar Kotter
Intent and Outcome: Primary liaison between the European Society of Radiology and RSNA to share tactics and collaborative opportunities.				
HIMSS-SIIM	Enterprise Imaging Definition Committee	Co-Chair	11/2014-4/2016 (work completed)	With Lou Lannum

Intent and Outcome: Early discussions to define “enterprise imaging” as a term and recognize its importance in electronic health record development. Concluded in a HIMSS-SIIM Enterprise Imaging Community white paper on the subject.				
HIMSS-SIIM	Enterprise Imaging Best Practice Acquisition Workflow & Data Governance Committee	Member	11/2014-4/2016 (work completed)	Alex Towbin
Intent and Outcome: Early discussions to outline enterprise imaging program, financial, clinical, business intelligence, information, and technical governance best practices. Concluded in a HIMSS-SIIM Enterprise Imaging Community white paper on the subject.				
HIMSS-SIIM	Diagnostic Imaging Adoption Model Committee	Member	4/2016-2/2019 (work completed)	Kim Garriott, Dawn Cram, and Mark Newburger
Intent and Outcome: Developed HIMSS Analytics Diagnostic Imaging Adoption Model as an objective standard for health systems to measure and advance their enterprise imaging infrastructure and processes as part of the HIMSS Analytics Adoption Model suite.				
HIMSS-SIIM	Interactive Multimedia Reporting Committee	Co-Chair	8/2019-8/2021 (paper published)	With Les Folio
Intent and Outcome: Two year workgroup to develop the clinical use case, workflow, and justification for multimedia reports in medicine (including graphs, tables, hypertext, typographical emphases, direct linkages to images, etc) across radiology, cardiology, dermatology, radiation oncology, pathology, endoscopy, ophthalmology, and physiatry. Concluded in a HIMSS-SIIM Enterprise Imaging Community white paper on the subject and an IHE interoperability profile.				
HIMSS-SIIM	Enterprise Imaging Community Leadership Team	Co-Chair	9/2015-8/2022 (rotated off)	With Dawn Cram and Alex Towbin
Intent and Outcome: • Founded and guided strategic planning for HIMSS-SIIM Enterprise Imaging Community. • Has led to 16 HIMSS-SIIM whitepapers as of 3/2025 that have been downloaded more than 100,000 times, more than 150 educational offerings at the SIIM and HIMSS Annual Meetings, 4 IHE profiles, and HIMSS Diagnostic Imaging Adoption Model. All Community whitepapers are now recognized and organized as a collection by the Journal of Imaging Informatics in Medicine (JIIM). This collection is the first ever in JIIM.				
IHE	Radiology Planning Committee	Member	7/2016-7/2018 (promoted to Chair)	Mike Bohl
Intent and Outcome: Participant in IHE Planning and primary standards-based integration profile voter for Duke University Department of Radiology.				

IHE	Encounter-Based Imaging Workflow (EBIW) Profile Development Committee	Lead MD	7/2016-1/2019 (profiles written)	With Kevin O'Donnell and Alex Towbin
Intent and Outcome: Multi-year workgroup to develop EBIW workflow integration profile for lightweight devices (ie. Scopes, phones and handheld cameras) and point of care ultrasound. Concluded in white paper on the subject and two IHE interoperability profiles.				
IHE	Radiology Technical Committee	Member	7/2016-6-2017	Andrei Leontiev and Wim Corbiyn
Intent and Outcome: Participation in IHE interoperability profile development for one cycle.				
IHE	Interactive Multimedia Reporting (IMR) Profile Development Committee	Co-Lead MD	5/2021-8/2022	With Les Folio and David Kwan
Intent and Outcome: Workgroup to develop IMR workflow integration profile (incorporating graphs, tables, schematic images, hypertext, typographical emphases, and links to images within specialty imaging reports).				
HIMSS-SIIM	Bodypart Ontology Initiative Committee	Member	3/2020-current	Alex Towbin
Intent and Outcome: Organize societies, physicians, industry to agree on a single body part nomenclature and ontology for the purposes of protecting sensitive images, improving display protocols, image sharing interoperability, and standardizing clinical workflows.				
IHE	Radiology Planning Committee	Chair	7/2018-6/2022	Self
Intent and Outcome: • Lead for IHE Planning Committee activities, including voting on integration technology profile developments for calendar years 2018-2022. • Primary voter for Duke University Department of Radiology. • Profiles approved for development: Encounter Based Imaging Workflow: Small Devices, AI Results, AI Workflow, AI Root Results, Contrast Administration Management, Interactive Multimedia Reporting. • Planned maintenance activities for 46 existing profiles. • Report outs to RSNA Informatics Council, IHE USA, and IHE International leadership.				
IHE	Domain Coordination Committee	Member	7/2018-current	Chris Carr
Intent and Outcome: Committee to share knowledge and planning across the span of IHE domains (endoscopy, infrastructure, mobile devices, dental, cardiology, pathology, others).				
NIST	Malcolm Baldrige Performance Excellence Program (US Department of Commerce)	Baldrige Examiner: Education	2010 award year	Mary Ann Nelson
Intent and Outcome: Baldrige program for US organizational excellence Examiner: educational candidate				

NIST	Malcolm Baldrige Performance Excellence Program (US Department of Commerce)	Sr. Baldrige Examiner: Healthcare	2011 award year	Rebecca Bean
Intent and Outcome: Baldrige program for US organizational excellence Examiner: healthcare candidate.				
RSNA	Refresher Course Committee	Informatics Track Chair	11/2015-12/2020 (Cmte evolved to RSNA AMPPC)	With Tessa Cook & Luciano Prevedello
Intent and Outcome: Responsible for design, speaker invitations and occasionally troubleshooting for RSNA annual meetings 2016-2020. Averaged planning approximately 100 didactic and hands-on RSNA Annual Meeting Refresher Courses. Managed the transition of these ~ 100 live informatics courses from 2015-2019 to 27 live courses in 2021 due to the strategic rethink of the RSNA meeting, COVID, and desire for more virtual content. Liaison to RSNA Meetings and Educations Committee.				
RSNA	Annual Meeting Program Planning Committee (AMPPC)	Informatics Subcmte. Chair	12/2020-12/2024 (rotated off)	Jorge Soto
Intent and Outcome: - Responsible for implementing new content types and session formats, policies, and procedures beginning with the re-imagined 2021 RSNA Annual Meeting and Scientific Assembly. - Responsible for overall informatics education strategic plan for Annual Meeting, including Education, Science, and Exhibits.				
RSNA	Annual Meeting Program Planning Committee (AMPPC) Informatics Subcommittee	Chair	12/2020-12/2023 (rotated off)	Self
Intent and Outcome: - Responsible for successful informatics education at the annual meeting, including 27 education courses, 8 science courses, poster sessions, plus several courses combining multiple subcommittees. - Led new session design, speaker invitations and discussions, new RSNA annual meeting informatics taxonomy curation and coverage, engagement with various RSNA informatics special interest groups, ensured coordination with digital learning activities. - Informatics speaker and course development troubleshooting, in particular for the COVID-impacted 2020 and 2021 Annual Meetings.				
RSNA	Integrating the Healthcare Enterprise Committee	Chair	7/2020-6/2022 (rotated off)	Self
Intent and Outcome: Responsible for pulse checking activities of RSNA IHE Radiology, and contributing to prioritization and profile writing. Subcommittee of the RSNA Radiology Informatics Council.				

RSNA	Informatics Council	Member	11/2015-12/2024 (rotated off)	John Eng
Intent and Outcome: - Serve as liaison and informatics subcommittee chair for Annual Meeting Program Planning Committee and for RSNA's IHE Radiology domain sponsorship. - Acted as committee member providing strategic feedback to RSNA staff and thought leadership on current and future initiatives.				
SIIM	Annual Meeting Program Committee	Member	6/2017-2/2019 (Promoted to Vice Chair)	Rick Wiggins
Intent and Outcome: Participating in SIIM Annual Meeting program design.				
SIIM	Annual Meeting Hackathon Judge	Judge	2017, 2018	Howard Chen
Intent and Outcome: Judged code-based solutions from developers, providers, and informaticists during the SIIM Annual Meeting to address known healthcare gaps.				
SIIM	Annual Meeting Program Committee	Vice Chair	2/2019-7/2020 (Promoted to Chair)	Rick Wiggins
Intent and Outcome: Development of Committee of 28 informatics MDs and non-MDs designing all aspects of SIIM Annual Meeting.				
SIIM	Annual Meeting Applied Informatics Sessions Abstracts Selection	Co-Chair	7/2019-7/2020 (declined invite to continue)	With Jon Shoemaker
Intent and Outcome: Reviewer and decider of abstracts to be offered live Annual Meeting speaking and poster opportunities. Declined re-invite with promotion to Annual Meeting Chair.				
SIIM	SIIM Strategic Planning Steering Taskforce	Member, Invited Physician Rep	10/2020-12/2020 (work complete)	Marc Kohli & Cheryl Carey
Intent and Outcome: Eleven member group to create the 2021-2024 Society for Imaging Informatics in Medicine strategic planning process and participating committee members.				
SIIM	SIIM Strategic Planning Committee	Member, Invited Physician Rep	1/2021-3/2021 (work complete)	Marc Kohli & Cheryl Carey
Intent and Outcome: Forty-eight member group designed the 2021-2024 Society for Imaging Informatics in Medicine strategic plan.				

Teaching Responsibilities Including Continuing Education:

Invited Presentations Outside Duke - Annual Meetings:

I) American College of Radiology Annual Meeting

1. Speaker. Real-World Image Sharing for Patient Centered Care. October 30, 2014. Washington, DC.
2. Speaker. The First Minutes Of A Cyberincident. April 24, 2022. Washington, DC.

II) American College of Radiology Informatics Summit Annual Meeting

1. Speaker. Why Artificial Intelligence Development is an Enterprise Level Initiative. October 5, 2019. Washington, DC.
2. Moderator. Wait, There Is More To ACR Informatics Than AI? October 27, 2020. Virtual.
3. Speaker. The Interface Between the ACR AC and Industry Delivered PAMA Clinical Decision Support at the Point of Care. October 27, 2020. Virtual.
4. Moderator. The Future of PAMA and Order Entry Decision Support using the Appropriateness Criteria. October 16, 2021. Virtual.
5. Speaker. Integrating And Messaging AI To Your Enterprise. October 17, 2021. Virtual.
6. Speaker. The First Minutes After An Incident. October 23, 2022. Washington, DC.
7. Moderate and Speaker. Are We “Unable To Forecast” What To Do With Order Entry CDS? October 23, 2022. Washington, DC.

III) European Society of Medical Imaging Informatics (EuSoMII) Annual Meeting

1. Speaker. How Should Hospitals Plan For AI Governance? October 23, 2021. Virtual.

IV) Gulf Cooperation Council (GCC - Middle East) eHealth Workforce Annual Meeting

1. Speaker. How Should Hospitals Plan For AI Governance? November 7, 2021. Dubai, UAE.
2. Speaker. A Roadmap for Appropriate Imaging Utilization. November 7, 2021. Dubai, UAE.

V) Health Information and Management Systems Society (HIMSS) Global Annual Meeting

1. Speaker. Understanding the Challenges of Enterprise Imaging. Health Information and Management Systems Society (HIMSS). March 1, 2016, Las Vegas, NV.
2. Speaker. The Challenges Archiving Clinical Multimedia. Health Information and Management Systems Society (HIMSS). March 3, 2016, Las Vegas, NV.
3. Speaker. Pilot Site Perspective In Using the Digital Imaging Adoption Model to Drive Enterprise Imaging Strategic Roadmaps. February 13, 2019. Orlando, FL.
4. Speaker. Enterprise Imaging: Looking Back, Looking Forward. March 6, 2025. Las Vegas, NV.

VI) Health Information and Management Systems Society (HIMSS) Continental Annual Meeting

1. Speaker. Status of Information Management Systems in the Market Place: What Is Ideal? Health Information Management Systems Society (HIMSS) AsiaPAC eHealth Innovation Summit. October 7, 2016. Singapore.
2. Speaker. RIS-PACS Best Practices. Health Information Management Systems Society (HIMSS) AsiaPAC eHealth Innovation Summit. October 7, 2016. Singapore.
3. Speaker. PACS Project Management: The Duke Experience. Health Information Management Systems Society (HIMSS) AsiaPAC eHealth Innovation Summit. October 7, 2016. Singapore.

4. Speaker. Use Case Scenarios for Enterprise Imaging: The Solutions. Health Information Management Systems Society (HIMSS) AsiaPAC eHealth Innovation Summit. October 8, 2016. Singapore.
5. Speaker. PACS Project Management: Lessons Learned. Health Information Management Systems Society (HIMSS) Middle East 2030 eHealth Summit. April 10, 2017, Riyadh, Saudi Arabia.
6. Speaker. PACS Business Intelligence: The Duke Experience. Health Information Management Systems Society (HIMSS) Middle East 2030 eHealth Summit. April 11, 2017, Riyadh, Saudi Arabia.
7. Speaker. The Ideal RIS-PACS System. Health Information Management Systems Society (HIMSS) Middle East 2030 eHealth Summit. April 11, 2017, Riyadh, Saudi Arabia.
8. Speaker. RIS-PACS Workflow Challenges. Health Information Management Systems Society (HIMSS) Middle East 2030 eHealth Summit. April 11, 2017, Riyadh, Saudi Arabia.
9. Speaker. Enterprise Imaging Procurement. Health Information Management Systems Society (HIMSS) Middle East 2030 eHealth Summit. April 11, 2017, Riyadh, Saudi Arabia.

VII) International Society for Computed Tomography (ISCT) Annual Meeting

1. Speaker. After You Click Send: CT Image Routing Storage and Lifecycle Management. June 22, 2016. San Francisco.
2. Speaker. Basics of Process Improvement: DMAIC, Lean, Six Sigma, and PDSA. June 23, 2016. San Francisco.
3. Speaker. Controversy: Diagnostic Decision Support – Will it ever happen? June 23, 2016. San Francisco.
4. Speaker. Controversy: To Do or Not To Do Structured Reporting For CT? June 23, 2016. San Francisco.
5. Speaker. Primer to Temporal Bone Anatomy. June 23, 2016. San Francisco.

VIII) Medical Imaging Informatics and Teleradiology (MIIT) Annual Meeting

1. Keynote Speaker. Enterprise Imaging Strategy Development: Lessons Learned. Hamilton, Ontario, Canada. April 28, 2017.

IX) Radiological Society of North America (RSNA) Annual Meeting

1. Moderator and Speaker. Session = Want to Learn More About Imaging Informatics? Education, Resources, and Certifications. Talk = Imaging and Nonimaging Informatics Society Certifications: What Is Out There and Is It Valuable? November 30, 2016. Chicago, IL.
2. Moderator and Speaker. Session = Cybersecurity for Imaging Departments and Imagers-Threats, Vulnerabilities and Best Practices. Talk = Highest Yield Privacy and Security Best Practices for Imagers. November 28, 2017. Chicago, IL.
3. Moderator and Speaker. Session = Enterprise Imaging for the Practicing Radiologist. Talk = Finance and Governance Challenges in Enterprise Imaging. November 28, 2017. Chicago, IL.
4. Moderator and Speaker. Session = Want to Learn More About Imaging Informatics? Education, Resources, and Certifications. Talk = Imaging and Nonimaging Informatics Society Certifications: What Is Out There and Is It Valuable? November 29, 2017. Chicago, IL.

5. Moderator and Speaker. Session = Informatics Strategic Planning and Execution: How-To's and Lessons Learned. Talk = Enterprise Imaging Strategic Planning. November 30, 2017. Chicago, IL.
6. Moderator and Speaker. Session = Cybersecurity for Imaging Departments and Imagers-Threats, Vulnerabilities and Best Practices. Talk = Highest Yield Privacy and Security Best Practices for Imagers. November 25, 2018. Chicago, IL.
7. Moderator and Speaker. Session = Enterprise Imaging for the Practicing Radiologist. Talk = Finance and Governance Challenges in Enterprise Imaging. November 27, 2018. Chicago, IL.
8. Moderator and Speaker. Session = Informatics Strategic Planning and Execution: How-To's and Lessons Learned. Talk = Enterprise Imaging Strategic Planning. November 28, 2018. Chicago, IL.
9. Moderator and Speaker. Session = Want to Learn More About Imaging Informatics? Education, Resources, and Certifications. Talk = Imaging and Nonimaging Informatics Society Certifications: What Is Out There and Is It Valuable? November 30, 2018. Chicago, IL.
10. Moderator and Speaker. Session = Want to Learn More About Imaging Informatics? Education, Resources, and Certifications. Talk = Imaging and Nonimaging Informatics Society Certifications: What Is Out There and Is It Valuable? December 2, 2019. Chicago, IL.
11. Moderator and Speaker. Session = Enterprise Imaging for the Practicing Radiologist. Talk = Finance and Governance Challenges in Enterprise Imaging. December 3, 2019. Chicago, IL.
12. Speaker. I Almost Got Fired As Enterprise IT Doc. December 3, 2019. Chicago, IL.
13. Hands On Faculty. Generating AutoHotkey Scripts to Automate Repetitive Tasks and Optimize Radiology Workflow Hands-On Course. Radiological Society of North America (RSNA). December 5, 2019. Chicago, IL.
14. Speaker. Highest Yield Privacy and Security Best Practices for Imagers. Radiological Society of North America (RSNA). November 30, 2020. Virtual On Demand.
15. Speaker. PACS in 2020: Thorny Questions When Considering A New PACS. Radiological Society of North America (RSNA). November 30, 2020. Virtual On Demand.
16. Speaker. Building Standards Into Workflows Using Integrating the Healthcare Enterprise Profiles. Radiological Society of North America (RSNA). November 30, 2020. Virtual On Demand.
17. Speaker. I Almost Got Fired As Enterprise IT Doc. Radiological Society of North America (RSNA). December 3, 2020. Virtual Live Featured Course.
18. Speaker. Solving Your AI Roadmap Gaps: A Case-Based Approach and Test of Your Knowledge. Radiological Society of North America (RSNA). November 28, 2021. Chicago, IL.
19. Speaker. Best Practices in Clinical Decision Support Rollout: Duke Perspective. Radiological Society of North America (RSNA). November 29, 2021. Chicago, IL.
20. Moderator. Imaging Interoperability: From Governance to Nuts and Bolts. Radiological Society of North America (RSNA). November 28, 2022. Chicago, IL.
21. Speaker. Analytics and Dashboarding of Value Based Care. Radiological Society of North America (RSNA). December 1, 2022. Chicago, IL.
22. Moderator. Best Practices for Procuring AI Platforms. Radiological Society of North America (RSNA). November 27, 2023. Chicago, IL.
23. Speaker. State of the Art Analytics and Dashboarding. Radiological Society of North America (RSNA). November 28, 2023. Chicago, IL.

24. Speaker. The First Minutes After An Incident. Radiological Society of North America (RSNA). November 29, 2023. Chicago, IL.

X) Society for Imaging Informatics In Medicine (SIIM) Annual Meeting

1. Keynote Speaker. Epic Protocoling. Epic User Group Session. May 27, 2015. Washington DC.
2. Speaker. Governance – Key to a Successful Enterprise Imaging Strategy. May 28, 2015. Washington DC.
3. Moderator. Surviving (and Thriving) in a World Without PACS. May 28, 2015. Washington DC.
4. Speaker. Understanding Enterprise Imaging Use Cases: Point of Care Ultrasound. May 28, 2015. Washington DC.
5. Speaker. Use Cases for Medical Images in Clinical Informatics: A Whole New World. May 29, 2015. Washington DC.
6. Speaker. Enterprise Imaging. Not Déjà vu All Over Again. June 29, 2016. Portland, Oregon.
7. Speaker. How Engaged Governance Structure Drives Success. June 29, 2016. Portland, Oregon.
8. Speaker. Solving Enterprise Imaging Use Cases. June 30th, 2016. Portland, Oregon.
9. Speaker. Image Sharing: What Duke and North Carolina Did Right and Wrong. Epic User Group Session. May 31, 2017. Pittsburgh, PA.
10. Speaker. How To Structure and Integrate Your Enterprise Imaging Teams. Epic User Group Session. May 31, 2017. Pittsburgh, PA.
11. Speaker. Image Management. SIIM Imaging Informatics Professional Bootcamp. May 31, 2017. Pittsburgh, PA.
12. Moderator and Speaker. Enterprise Imaging Foundations & Governance. June 1, 2017. Pittsburgh, PA.
13. Moderator and Speaker. Imaging Use Cases: Challenges and Opportunities. June 1, 2017. Pittsburgh, PA.
14. Moderator and Speaker. Who Owns Imaging? Enterprise Imaging Leadership. June 2, 2017. Pittsburgh, PA.
15. Moderator and Speaker. Enterprise Imaging: Image Exchange and Viewers. June 2, 2017. Pittsburgh, PA.
16. Moderator and Speaker. Business of Imaging: Ruthlessly Quantifying Your Value Metrics. June 3, 2017. Pittsburgh, PA.
17. Speaker. Image Management. SIIM Imaging Informatics Professional Bootcamp. May 30, 2018.
18. Speaker. Learning from Your Mistakes - War Stories from the Front Lines. May 31, 2018. National Harbor, MD.
19. Speaker. Imaging Governance - Ten Minute Lessons from the Front Lines. May 31, 2018. National Harbor, MD.
20. Speaker. Cybersecurity for Imaging Departments and Imagers. June 2, 2018. National Harbor, MD.
21. Speaker. Selecting an Enterprise Viewer. June 2, 2018. National Harbor, MD.
22. Speaker. Image Management. SIIM Imaging Informatics Professional Bootcamp. June 25, 2019. Denver, CO.
23. Speaker. Unexpected Findings Management. SIIM Epic User Group Session. June 25, 2019. Denver, CO.

24. Speaker. Highest Yield Cybersecurity For Imagers. June 25, 2019. Denver, CO.
25. Speaker. Solving the Hardest Problems in Enterprise Imaging. June 26, 2019. Denver, CO.
26. Speaker. Building the Right Team for Success in the Consolidated Enterprise. June 27, 2019. Denver, CO.
27. Moderator. POCUS Perspectives From Critical Care, Anesthesia, and Emergency Medicine. June 26, 2020. Virtual.
28. Speaker. Your Next Year's Roadmap for (Successful) Imaging Clinical Decision Support and Utilization Management. May 24, 2021. Virtual.
29. Speaker. AI Platform Procurement: Asking the Right Questions & Integrating with Broader IT Infrastructure. May 25, 2021. Virtual.
30. Speaker. Point of Care Ultrasound Challenges. SIIM Epic User Group Session. June 8, 2022. Orlando, FL.
31. Speaker. AI Interoperability from (A)nnotation to (Z)oo: Making Imaging AI Ubiquitous with Interoperability and Standards. June 10, 2022. Orlando, FL.
32. Speaker. Enterprise Imaging Turns 10! June 27, 2024. National Harbor, MD.
33. Speaker. AI's Hidden ROI: Winning C-Suite Buy-In and Securing Long Term Value. May 22, 2025. Portland, OR.

XI) Singapore Radiological Society Annual Meeting Presentations

1. Speaker. Why Artificial Intelligence Development Is An Enterprise Imaging Initiative. August 15, 2021. Singapore Radiological Society and College of Radiologists Singapore. SGCR WIRES 2021. Virtual.
2. Speaker. Digital Transformation of Imaging. Singapore Radiological Society and College of Radiologists Singapore. August 28, 2025. SGCR WIRES 2025. Singapore.

Invited Presentations Outside Duke - Non-Annual Meetings:

I) Invited Single Institution Presentations

1. Speaker. Radiology, In Five Years. Duke-NUS Singapore Academic Clinical Programme Grand Rounds. October 10, 2016. Singapore.
2. Speaker. Duke-NUS Singapore Radiology Resident Temporal Bone Tutorial Conference. October 10, 2016. Singapore.
3. Speaker. Clinical Decision Support in the United States, March 13, 2018. Clinica Alemana, Santiago, Chile.
4. Speaker. RIS-PACS, March 13, 2018. Clinica Alemana, Santiago, Chile.
5. Speaker. Enterprise Imaging: Finally a Solution For All Images. Clinica Alemana Grand Rounds. March 14, 2018. Santiago, Chile.
6. Speaker (Keynote). Enterprise Imaging Strategy and Lessons Learned. Walter Reed Hospital Uniformed Services University of the Health Sciences (US Armed Forces). Enterprise Imaging Summit. Walter Reed Hospital. Bethesda, MD. November 14, 2019.
7. Speaker. Lessons In Informatics and PACS Deployment. University of Texas Southwestern Grand Rounds. Virtual. September 23, 2021.
8. Speaker. What A Career In Informatics Looks Like. University of Texas Southwestern Resident Lecture. Virtual. September 23, 2021.

9. Speaker. Informatics Is Not About Technology; It Is About People. Children's Hospital of Philadelphia (CHOP) Grand Rounds. Philadelphia, PA. September 20, 2022.

II) RSNA-SIIM Resident National Imaging Informatics Curriculum and Course (NIIC-RAD) (Biannual):

1. Speaker. Certification Pathways for Imaging and Non-Imaging Clinical Informatics (archived repository lecture). October 4, 2017.
2. Speaker. Enterprise Imaging Strategic Planning: Lessons Learned (archived repository lecture). October 4, 2017.
3. Speaker. Beyond Imaging Informatics (archived repository lecture). October 4, 2017.
4. Speaker. How to Get Your Good Idea Supported, Funded, and Executed. October 4, 2017.
5. Speaker. Certification Pathways for Imaging and Non-Imaging Clinical Informatics. October 4, 2017.
6. Small Group Moderator. Radiology As Seen From Outside the Radiology Department. October 4, 2017.
7. Small Group Moderator. Radiology Imaging Cybersecurity. October 5, 2017.
8. Small Group Moderator. Beyond Imaging Informatics. October 6, 2017.
9. Speaker. How to Get Your Good Idea Supported, Funded, and Executed. January 10, 2018.
10. Small Group Moderator. Standards and Workflow Errors. October 8, 2018.
11. Speaker. How to Get Your Good Idea Supported, Funded, and Executed. October 10, 2018.
12. Small Group Moderator. DICOM Image Data Anonymization. October 10, 2018.
13. Small Group Moderator. New PACS Infrastructure. October 11, 2018.
14. Speaker. How to Get Your Good Idea Supported, Funded, and Executed. January 17, 2019.
15. Small Group Moderator. Journal Club. January 17, 2019.
16. Small Group Moderator. Patient Data Privacy and Security. January 17, 2019.
17. Speaker. How to Get Your Good Idea Supported, Funded, and Executed. September 19, 2019.
18. Speaker. How to Get Your Good Idea Supported, Funded, and Executed. January 29, 2020.
19. Speaker. How to Get Your Good Idea Supported, Funded, and Executed. October 1, 2020.
20. Speaker. How to Get Your Good Idea Supported, Funded, and Executed. March 11, 2021.
21. Speaker. How to Get Your Good Idea Supported, Funded, and Executed. September 30, 2021.
22. Speaker. How to Get Your Good Idea Supported, Funded, and Executed. March 3, 2022.
23. Speaker. How to Get Your Good Idea Supported, Funded, and Executed. September 22, 2022.
24. Speaker. How to Get Your Good Idea Supported, Funded, and Executed. March 10, 2023.
25. Speaker. How to Get Your Good Idea Supported, Funded, and Executed. September 20, 2023.
26. Speaker. How to Get Your Good Idea Supported, Funded, and Executed. March 6, 2024.
27. Speaker. How to Get Your Good Idea Supported, Funded, and Executed. September 25, 2024.
28. Speaker. How to Get Your Good Idea Supported, Funded, and Executed. March 20, 2025.
29. Speaker. How to Get Your Good Idea Supported, Funded, and Executed. September 26, 2025.
30. Speaker. How to Get Your Good Idea Supported, Funded, and Executed. March 26, 2026.

III) SIIM Webinar:

1. Moderator. Value Based Healthcare Meets Enterprise Imaging. Speaker: Kevin McEnery. SIIM Webinar. May 21, 2015.
2. Leader. Putting It All Together: AI Request For Proposal. SIIM Imaging Informatics Professional (IIP) Bootcamp: Week 6 Session. November 10, 2020.

3. Leader. Putting It All Together: AI Request For Proposal. SIIM Imaging Informatics Professional (IIP) Bootcamp: Week 6 Session. March 2, 2021.
4. Speaker. [Succeeding in a Virtual Meeting World - How to Drive Meaningful Conversations at #SIIM21](#). April 27, 2021.
5. Leader. Putting It All Together: AI Request For Proposal. SIIM Imaging Informatics Professional (IIP) Bootcamp: Week 6 Session. November 9, 2021.

IV) SIIM Security Summit:

1. Speaker. The Balance of Cybersecurity, Usability, Innovation in Academic Imaging Practices. SIIM Security Virtual Summit. October 7, 2019.
2. Panelist. SIIM Security Summit Ending Session Question and Answer Security Panel. SIIM Security Virtual Summit. October 8, 2019.

V) HIMSS-SIIM Enterprise Imaging Webinars and Roundtables:

1. Speaker. Enterprise Imaging Strategy Development: Lessons Learned. November 17, 2016.
2. Moderator. Looking Ahead with Pathology Informatics Leadership: Expert Enterprise Imaging Roundtable. March 16, 2017.
3. Speaker. Enterprise Imaging Governance 2.0 - a primer for the HIMSS-SIIM Community. October 4, 2018.
4. Speaker. Pilot Site Perspective In Using the Digital Imaging Adoption Model to Drive Enterprise Imaging Strategic Roadmaps. January 29, 2019.
5. Speaker. Building the Right Team for Success in the Consolidated Enterprise. October 17, 2019.
6. Speaker. Point of Care Ultrasound Deployment and Governance During COVID. April 15, 2020.
7. Speaker. What's the problem? The Importance of Anatomic Body Part Labeling. March 25, 2021.
8. Small Group Leader. What's the problem? The Importance of Anatomic Body Part Labeling Roundtable. April 15, 2021.
9. Moderator. Going Global: Imaging Informatics Without Boundaries. May 11, 2021.
10. Moderator. Interactive Multimedia Reporting. October 7, 2021.
11. Speaker. Optimizing Image Exchange - Tips from the Experts. December 19, 2022.
12. Speaker. The ROI Of Enterprise Imaging. February 29, 2024.

VI) HIMSS-SIIM Enterprise Imaging Meetups, and Annual Meeting #AskIndustry Sessions:

1. Speaker. The Value of Enterprise Imaging. HIMSS-SIIM Enterprise Imaging Community Meetup. Society for Imaging Informatics in Medicine (SIIM) Annual Meeting. June 29, 2016. Portland, Oregon.
2. Moderator. Mitigating Risk and Creating Value: Enterprise Image Capture and Management #AskIndustry Session (vendor speakers only). Society for Imaging Informatics in Medicine (SIIM) Annual Meeting. June 1, 2017. Pittsburgh, PA.
3. Speaker. HIMSS-SIIM Diagnostic Imaging Adoption Model: The Duke Experience. HIMSS-SIIM Enterprise Imaging Community Meetup. Radiological Society of North America (RSNA) Annual Meeting. November 26, 2018. Chicago, IL.
4. Speaker. Beneath the Surface: SIIM Global Program. Society for Imaging Informatics in Medicine (SIIM). May 14, 2021.

5. Moderator. Member Meetup: SIIM21 Takeaways. Society for Imaging Informatics in Medicine (SIIM). June 17, 2021.
- a. Moderator. The Value of Enterprise Imaging Data Governance. HIMSS-SIIM Enterprise Imaging Community Meetup. HIMSS Annual Meeting. March 6, 2025. Las Vegas, NV.

VII) SIIM SIIMCast Podcasts:

1. Speaker. [Imaging IT Workflow, Vendor Selection, and Enterprise Imaging Considerations](#). January 4, 2018.
2. Speaker. [Chief Medical Information Officers](#). April 7, 2021.
3. Speaker. [Live from SIIM24: A Special Episode of Between Two Fellows With Dr. Christopher Roth and Dr. Alex Towbin](#). July 16, 2024.

VIII) Health System CIO Podcasts:

1. Speaker. [Q&A with Duke University Health System Vice Chairman of Radiology, IT, & Clinical Informatics Christopher Roth, MD: "Enterprise Imaging Has Part to Play in Addressing Shrinking Margins"](#). June 18, 2024.

VIII) Integrating the Healthcare Enterprise Webinar

1. Speaker. Encounter-Based Imaging Workflow and Clinical Decision Support Order Appropriateness Tracking. Inside IHE Radiology Webinar series. August 7, 2019.

IX) American Society of Radiologic Technologists Webinar

1. Speaker. Cybersecurity Primer for Radiologic Professionals. November 11, 2022.

X) Canada Health Infoway Webinar

1. Speaker. A Practical Conversation about Enterprise Imaging. November 18, 2022.

XI) AuntMinnie.com Webinar

2. Speaker. [From Burnout to Balance: Leveraging Enterprise Imaging for Radiologist Well-Being](#). AuntMinnie.com Webinar series. October 9, 2024.

XI) Invited Radiology Informatics Fellowship Presentations

1. Speaker. Enterprise Imaging Strategic Development. University of Pennsylvania Clinical Informatics Fellowship invited lecture. Fellowship Director: Dr. Tessa Cook. April 20, 2017.
2. Speaker. How to Get Your Good Idea Supported, Funded, and Executed. University of Pennsylvania Clinical Informatics Fellowship invited lecture. Fellowship Director: Dr. Tessa Cook. April 20, 2017.
3. Speaker. How to Get Your Good Idea Supported, Funded, and Executed. University of Pennsylvania Clinical Informatics Fellowship invited lecture. Fellowship Director: Dr. Tessa Cook. December 6, 2017.
4. Speaker. Enterprise Imaging Strategic Development. University of Pennsylvania Clinical Informatics Fellowship invited lecture. Fellowship Director: Dr. Tessa Cook. February 7, 2018.
5. Speaker. How to Get Your Good Idea Supported, Funded, and Executed. University of Pennsylvania Clinical Informatics Fellowship invited lecture. Fellowship Director: Dr. Tessa Cook. October 17, 2018.

6. Speaker. Enterprise Imaging Strategic Development. University of Pennsylvania Clinical Informatics Fellowship invited lecture. Fellowship Director: Dr. Tessa Cook. November 14, 2018.
7. Speaker. Informatics FTE Planning and Business Case Development for Hiring. University of Pennsylvania Clinical Informatics Fellowship invited lecture. Fellowship Director: Dr. Tessa Cook. September 11, 2019.
8. Speaker. Enterprise Imaging Team Development Strategy. Emory University Clinical Informatics Fellowship invited lecture. Fellowship Director: Dr. Nabile Safdar. October 9, 2019.
9. Speaker. Imaging Order Entry Clinical Decision Support. University of Pennsylvania Clinical Informatics Fellowship invited lecture. Fellowship Director: Dr. Tessa Cook. January 12, 2022.
10. Speaker. Imaging Order Entry Clinical Decision Support. University of Pennsylvania Clinical Informatics Fellowship invited lecture. Fellowship Director: Dr. Tessa Cook. May 3, 2023.
11. Speaker. Challenges With Imaging Service Lines and Radiology Departments. University of Pennsylvania Clinical Informatics Fellowship invited lecture. Fellowship Director: Dr. Tessa Cook. February 26, 2025.

X) Invited non-Duke North Carolina Instructional Presentations

1. Speaker. Statewide Image Sharing Current State and Proposal. North Carolina Health Information and Communication Alliance (NCHICA). January 13, 2016. Raleigh, NC.
2. Speaker. Duke Radiology Morbidity & Mortality Conference: Radiologist Distractions. April 28, 2016.
3. Speaker. North Carolina CIO & CMIO Image Sharing Update. North Carolina Health Information and Communication Alliance (NCHICA). July 13, 2016. Raleigh, NC.
4. Keynote Speaker. Image Sharing: A Strategic Imperative. Duke Image Sharing Outreach Breakfast. August 17, 2016. Raleigh, NC.
5. Speaker. Image Sharing in North Carolina. North Carolina Epic User Group Meeting. February 8, 2017, Greensboro, NC.
6. Speaker. Point-of-Care Ultrasound Review, Resulting, and Incorporation into Teaching. North Carolina Epic User Group Meeting (NC UGM). February 22, 2018. Greensboro, NC.

XI) Epic Expert Group Meeting (XGM) and User Group Meetings (UGM), (all Verona, WI)

1. Speaker. Enterprise Imaging in Epic. Epic User Group Meeting (UGM). September 15, 2014.
2. Speaker. Lessons Learned from Radiologist and Technologist Manager Dashboard Build. Epic Expert Group Meeting (XGM). April 19, 2016.
3. Speaker. Consolidating Information Germane to Imaging on the Protocol Work List. Epic Expert Group Meeting (XGM). April 20, 2016.
4. Speaker. Point-of-Care Ultrasound Review, Resulting, and Incorporation into Teaching. Epic User Group Meeting (UGM). September 27, 2017.
5. Speaker. Optimizing and Development in Epic Radiologist Interpretation Priority. Epic Expert Group Meeting (XGM). May 7, 2019.
6. Speaker. Epic Safety Forum: When Results and Unexpected Radiology Findings Get Missed. Epic User Group Meeting (UGM). August 27, 2019.
7. Speaker. Critical and Unexpected Result Tracking at Duke University: Epic Radiant Foundation Board. Epic Expert Group Meeting (XGM). April 23, 2020.

XII) Corporate Presentations

1. Keynote Speaker. What Is Happening At The Front Lines of Enterprise Imaging: Lessons for Providers, Hospitals, and Industry. KLAS Cornerstone Enterprise Imaging Summit. April 5, 2018. Park City, UT.
2. Speaker. The Digital Imaging Adoption Model- Achieving Enterprise Imaging Maturity. Health Information Management Systems Society (HIMSS) Analytics Webinar. June 20, 2019.
3. Speaker. Visage 7 - CloudPACS | Observations of the Journey to the Cloud. American College of Radiology Informatics Summit. October 17, 2021.

Invited Presentations Within Duke:

1. Speaker. Neuroradiology Trauma and On-Call. Duke Radiologic Technology Week. November 12, 2009.
2. Speaker & Moderator. Duke University Fuqua School of Business Executive Series. EHR Implementation Strategies at Duke University, Cone Health, and East Carolina University. October 6, 2011.
3. Speaker. Imaging Informatics, Guest Lecturer at Fuqua School of Business, Health IT Business Solutions 537CI course. Instructor: Constance Johnson, PhD. September 28, 2012.
4. Speaker. Duke Medicine Imaging Strategy. Duke Radiologic Technology Week. November 6, 2014.
5. Speaker. DUHS Department of Radiology Grand Rounds. Enterprise Imaging Informatics: Where We Are and Where We Are Going. October 15, 2015.
6. Speaker. Radiology, In Five Years. Duke Radiologic Technology Week. November 7, 2018.
7. Speaker. Imaging Clinical Support Mandate and Strategy. Duke Health Informatics Series Seminar. March 4, 2020.
8. Speaker. Top Trends for Imaging Informatics in 2020. Duke School of Nursing, N716 Nursing Informatics. November 2, 2020.
9. Speaker. Cybersecurity in Duke Radiology. DUHS Department of Radiology ASRT Continuing Education. July 13, 2021.
10. Speaker. What Is Duke Doing In AI In 2025? DUHS Department of Radiology ASRT Continuing Education. September 25, 2025.

National Imaging Organization Online Education Participation:

1. **Roth CJ**. Reviewer and Editor of: Magnetic Resonance Technologists: Neuro MRI Principles and Protocols. International Society of Magnetic Resonance in Medicine. 2(2), 5/2009.
2. **Roth CJ**. Cybersecurity for Imaging Departments and Imagers - Threats, Vulnerabilities, and Best Practices: Part 2 (2017). 1.5 credits. RSNA SA-CME Author. Expired April 26, 2021.
3. Pong D, **Roth C**, Kuruva M, Enterline D: Case of the Week: Intraosseous Schwannoma. Am. J. Neuroradiology. 2020 July 16. <http://www.ajnr.org/content/cow/07162020>.
4. **Roth C**. Lesson 24: Developing your informatics elevator pitch. In, Society for Imaging Informatics in Medicine I3 - [Integrating Imaging Informatics](#) online education. Freely available.

National Educational Resources Featuring Duke Health:

1. Nataraja S. [Imaging Performance Partnership. Imaging's System Advantage: Five Goals for Achieving Systemness in Imaging](#). Duke Enterprise Imaging Strategy featured. The Advisory Board Company (behind paywall). September 30, 2016.

Duke Health Mentoring:

1. Ramin Javan, MD. 2011-2012. Mentorship and advising of projects, research work, growth into informatics management roles, and academic medicine.
2. Adia Ross, MD. 2011-2012. Informal Malcolm Baldrige Performance Excellence Program Examiner responsibilities.
3. Ashish Saxena. February-August 2013. Duke University Fuqua School of Business Practicum: Approach for Electronic Image Exchange at DUHS.
4. Wei (Chris) Huang. February-August 2013. Duke University Fuqua School of Business Practicum: Vendor Neutral Archive Expansion to Infrequent Imaging Specialties.
5. Sam Kuzminski, MD. July 2013-March 2015. Resident PQI Project: Epic protocol MR SmartForm Updates.
6. Vijay Yerubandi, MD. July 2013-May 2015. Resident PQI Project: Epic protocol CT SmartForm Updates.
7. Kal Clark, MD. October 2015-January 2017. Duke Health ACR Select implementation.
8. Raj Gondalia, MD,. May 2016-current. Redesign of radiologist dictation workstation, Department social media, process and infrastructure education for informatics design in DHTS.
9. Nick DuRocher, MD. August 2016-current. Resident PQI Project: New mice for all Duke Radiology sites.
10. Kal Clark, MD. September 2016-current. Law, Ethics and Health Policy Duke GME Concentration.
11. Mark Kelly. November 2016-August 2017. Duke third year medical student research requirement: ACR Select clinical decision support implementation and Best Practice Advisory development.
12. Mark Kelly, Marissa Stroo, Matt Dewey. December 2016-August 2017. MMCI Practicum: Research image de-identification, storage, and exchange vision for DUHS.
13. Brian Jiang. January-February 2017. Duke University School of Medicine COMMFAM 448 fourth year medical student preceptorship. Imaging and radiologist IT security best practices.
14. Nick Befera, MD; Ryan Short, Raj Gondalia. April 2017-March 2018. Entrepreneurship. Scanslated software development and implementation of patient understandable radiology reports.
15. Austin Dixon. November 2017-March 2018. Duke Health CCHAMP leadership program project. Improving Duke Primary Care (DPC) imaging order appropriateness.
16. Paul Chichester, October 2018-March 2018. MMCI Practicum: Transitioning Duke Radiology orders to RadLex LOINC national standard.
17. Cameron Olsen (fourth year medical student PQI project) and Kim Maurer (resident PQI project), February-March 2020. Rebuild of Relevant Priors tab in Epic.
18. Sehj Kashyap (fourth year medical student PQI project). February-March 2021. Predicting Risk of Pulmonary Embolism Outcomes Using EHR Data: Duke-Stanford collaboration machine learning project participation.
19. Nicholas Said. Duke Radiology Faculty Mentorship program. 3/2024-current.
20. Audrey Verde. Duke Radiology Faculty Mentorship program. 1/2025-current.

Duke Health Continuing Education Course Participation:

- Speaker. Annual Duke Radiology Beach Course. Myrtle Beach, South Carolina. 2011-2019, 2021.
- Speaker. Duke Review. Durham, North Carolina. 2011-2019.
- Duke Review IT support alongside Department of Radiology staff Debbie Griffin and Mark Martin (2013-2019).

- Includes 2016 investigation, testing, and implementation of Duke Review secure streaming to graduate medical trainees South Africa.
- Speaker. Duke Radiology at Walt Disney World. Orlando, Florida. 2011, 2014, 2016, 2025.
 - Course Co-Director 2014, 2016.
- Speaker. Duke Radiology in the Islands. Aruba. 2019.
- Speaker. Duke Radiology in the Blue Ridge Mountains. Asheville, North Carolina. 2022.
- Speaker. Duke Radiology Turks and Caicos. 2023.

Duke Health Annual or Ongoing Training Designed and Overseen:

- Epic EHR (2013-current):
 - Physician (faculty, learner), technologist, nurse, front desk, and file room staff on boarding training alongside Training and Radiant teams.
- Nuance PowerScribe (2010-current) and PACS (GE: 2010-2020; Visage 2020-current):
 - Physician (faculty and learner) on boarding training alongside Applications and Image Management team.
- Department Fellows Orientation (2015-2019) with Jan Taylor: What To Do And What Not To Do At Duke.
- Duke University Health System Cybersecurity Education Program (February 2021-current):
 - Designed monthly imaging-specific phishing training for Duke Radiology faculty, learners, and staff.

Duke Health One Time Training Designed and Overseen:

- Epic initial go live education: April 2013
 - Contributed to inpatient and outpatient training for more than 1,500 providers across DUHS for ordering imaging studies. Included Epic order composer, necessary hard and soft stops, requisite items of radiology scheduling, charge capture, and other workflows and dataflows.
 - Designed inpatient training and radiologic training for estimated 50 faculty, 45 residents, 40 fellows, 25 community radiologists, plus all Radiology technologists, nurses, front desk and File Room staff. Included ordersets, Favorites, preference lists, SmartForms, daily schedule, dashboards, patient chart search, In Basket, and other workflows and dataflows.
 - Designed dedicated train-the-trainer Super User inpatient training and radiologist training for 16 MD and 2 Advanced Practitioners.
- Epic Driven Radiologist Workflow: April & May 2018
 - Designed training of 177 faculty (radiologists, cardiologists, neurosurgeons, and vascular surgeons), advanced practice providers, residents and fellows, plus necessary Radiology Image Library staff, nurses, technologists, and reading room coordinators. Attended 23 out of 24 two hour sessions to answer questions, drive home culture change, and prepare colleagues.
 - Contributed to training of several DHTS support teams, such as the Service Desk, Image Management team, as well as physician leadership such as Clinical Vice Chairs and PDC leadership.
- Visage Radiology Image Viewer PACS: February 2020.
 - Designed training for 183 faculty and learner radiologists and advanced practice providers.
 - Designed training for 73 radiology technologist superusers across 3 hospitals. Superusers trained their staff colleagues.

News Media Features With Dr. Roth:

1. Boshamer C. Lean-6Sigma Catches On: Part 1 of 2. ACR Bulletin. January 2010.
2. Boshamer C. Improving Productivity & Fiscal Health: Part 2 of 2. ACR Bulletin February 2010.
3. DeBoer S. Finding Your Edge: Young Radiologists Jumpstart Their Careers With ACR Fellowships. ACR Bulletin. September 2011.
4. Rath D. [Top 10 Tech Trends: A More Patient Centric View of Imaging](#). Healthcare Innovation. February 21, 2013.
5. Proval C. [Duke University Health System Selects Epic-friendly VNA](#). Radiology Business News. February 21, 2013.
6. Marion, J. [A Framework to Aid VNA Implementation](#). Healthcare Innovation. September 22, 2014.
7. DeGaspari J. [Duke Medicine's Imaging Informatics Game Plan](#). Healthcare Innovation. September 22, 2014.
8. Proval C. [10 tips from the SIIM Town Hall: Creating an enterprise image strategy](#). Radiology Business. May 31, 2015.
9. Freiherr G. [Image sharing presents challenges to the enterprise](#). Aunt Minnie. March 3, 2016.
10. Ridley EL. [7 steps to enterprise imaging success](#). Aunt Minnie. June 14, 2016.
11. Freiherr G. [HIMSS: Challenges take shape as enterprise imaging gains prominence](#). AuntMinnie. March 3, 2016.
12. Ridley EL. [HIMSS/SIIM paper offers advice on enterprise image viewers](#). Aunt Minnie. August 4, 2016.
13. Christierson M. [What do you like most about the ISCT Symposium?](#) International Society for Computed Tomography Annual Symposium. November 17, 2016.
14. Rath D. [10 Lessons on Enterprise Imaging Strategic Planning from Duke University Medical Center](#). Healthcare Informatics. November 21, 2016.
15. Ridley EL. [Top 10 lessons for planning enterprise imaging strategy](#). Aunt Minnie. November 21, 2016.
16. Rath D. [Top Ten Tech Trends 2017: For Imaging Informatics, Focus on Value Puts Emphasis on Analytics, Interoperability](#). Healthcare Innovation. March 24, 2017.
17. Stahl M. [Technology Integration at Leading Health Systems: Vendor Neutral Archives at Duke Health](#). The Health Management Academy (behind member paywall). September 19, 2017.
18. Taschetta-Millane M. [Defining Enterprise Imaging — The HIMSS-SIIM Enterprise Imaging Workgroup](#). July 11, 2017. Imaging Technology News (itnTV). Last successfully accessed July 11, 2017. Broken link noted April 20, 2021. Per ITN, will not be updated.
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External Support - Gifts, Grants, and Contracts:

1. Clinical Decision Support Tool for Radiologists Encountering Incidental Findings on Abdominal CT. PI & Mentee: Ramin Javan. Source: GME Innovation Fund, 2012. Sum \$48,846.
2. Grant to attend 2015 American College of Radiology, Radiology Leadership Institute. North Carolina Radiological Society. Sum \$2,500.

Clinical Activity:

- Life support: BLS and ACLS certification expires 5/30/2027.
- DEA license: Expires 4/30/2028.
- Duke Health Neuroradiology:
 - CT, MR, functional MR, fluoroscopic, and radiographic brain, head, neck, and spine imaging.
 - Averaging ~100 RVUs per diagnostic clinical day.
- Interventional pain management:
 - CT fluoroscopic guided head, neck, and paraspinal drainages and biopsies.
 - Fluoroscopic guided lumbar punctures, myelograms, and CSF medication administrations.
 - CT fluoroscopic guided post lumbar drain blood patches (rarely performed).

- CT fluoroscopic cervical, thoracic, and lumbar pain management.
 - Epidural injections, transforaminal injections, facet injections, musculoskeletal trigger point injections, periosteal injections, sacroiliac joint injections, synovial cyst fenestrations.
 - Pre care, including orders for sedation, clinical documentation for medical necessity, peer-to-peer participation.
 - Post care, including follow up phone calls and followup documentation.
 - DUHS Southpoint Clinic interventional spine practice site routinely near/at the top patient satisfaction scores across all Duke Health.
 - <https://www.healthgrades.com/physician/dr-christopher-roth-yqg35>. Six reviews as of this writing, all five stars.

Duke Health Enterprise Committees: Current

#	Current Enterprise Committees	Role	Since:	Chair(s)
1	Duke Health Physician Champions	Member	6/2013	Clay Musser
Intent and Outcome: Ongoing knowledge sharing of innovative or best practices deployed in Duke EHR for collaboration and cross disciplinary knowledge sharing.				
2	Duke Health Physician Optimization	Member	6/2013	Clay Musser
Intent and Outcome: Governance body for physician workflow changes, build, and development.				
3	Medical Informatics	Member	12/2014	Eric Poon
Intent and Outcome: Direct reports for CHIO and CAO. For cross team (clinical, DHTS, analytics) dialogue and planning.				
4	Enterprise Operations Council (EOC)	Member	5/2015	Eric Poon
Intent and Outcome: Duke Health executive oversight of clinical operations, strategy and financial approvals.				
5	Clinical Informatics Fellowship Interviewers	Member	12/2016	Eric Poon
Intent and Outcome: Selection of annual Duke Health Clinical Informatics fellows (on demand, in case imaging savvy person applies).				
6	Growth	Member	4/2022	Morgan Jones
Intent and Outcomes: Monthly meeting of high level clinical and administrative leadership to operationalize and elevate growth opportunities. Known as Growth Subcommittee from 4/2022-9/2024.				
7	CSU Medical Directors	Member	1/2024	David Gallagher
Intent and Outcome: Monthly high priority communication venue with clinical Vice Chair, service line, and c-suite leadership.				
8	CSU Priority Performance Checks	Member	4/2024	Mary Martin and Greg Pauly
Intent and Outcome: Weekly rotating People, Access, Growth, and Quality & Safety reviews by service line and hospital clinical service unit.				
9	Acute Care Operations	Member	9/2024	Greg Pauly

Intent and Outcomes: Weekly meeting of departmental Chairs, hospital Presidents, clinical service line and administrative leadership focused on highest priority topics for DUHS.				
10	Joint Ambulatory Steering	Member	10/2024	Angelo Milazzo and Kevin Shah
Intent and Outcomes: Monthly meeting of predominantly ambulatory clinicians representative on ambulatory clinics focused on efficiency and standardization.				
11	Strategic Intelligence Quarterly	Member	10/2024	Morgan Jones
Intent and Outcomes: Quarterly clinical and administrative leadership meeting for visibility into strategy for Duke as well as local and regional competitors.				
12	Duke Cary Hospital Radiology Planning	Member	11/2024	Mironda Robinson
Intent and Outcomes: Plan layout, equipment, workflow, patient flow, and IT for under construction Duke Cary Hospital campus				
13	Duke Cary Hospital Steering	Member	11/2024	Holly Brookover
Intent and Outcomes: Cross service line and department committee to plan under construction Duke Cary Hospital campus.				
14	Duke Cancer Institute Executive Leadership Team	Member	09/2025	Mara Bloom and Peter Allen
Intent and Outcomes: Cross service line oversight of medical and surgical oncology, theranostics, infusion, and radiation oncology, and related cancer operations an strategy across Duke Health.				
15	Duke Health Clinical Excellence Award Selection Committee	Member	03/2026	Cary Ward and Angelo Milazzo
Intent and Outcomes: Selection of Duke faculty award to exemplify exceptional clinical expertise, diagnostic precision, and deep medical knowledge.				

Duke Health Department of Radiology Committees: Current

#	Current Dept. of Radiology Committees	Role	Since:	Chair(s)
1	Clinical Radiology IT Governance	Founder, Co-Chair	1/2011	With Brenda Boardwine
Intents and Outcomes: Governance and prioritization body for Radiology IT and informatics tickets and projects, with an eye toward appropriate and standardized workflows for image capture, storage, indexing, management, distribution, viewing, sharing, and reporting, with oversight spanning from spanning to revenue.				
2	Division Chiefs	Member	6/2011	Tracy Jaffe
Intent: Discussion of Radiology Division-specific current events.				
3	Executive Committee (REC)	Member	6/2011	Erik Paulson
Intent: Executive oversight of Radiology operations.				
4	Radiology Revenue Integrity Committee (RRIC)	Member	9/2012	Jan Taylor

Intent: Multidisciplinary, multi-role group toward optimizing revenue opportunities. After creation of ROC, serves as ROC Revenue Cycle Subcommittee.				
5	Radiology Quarterly Operations Report Out Committee	Member	8/2014	Holly Brookover
Intent: Quarterly presentation of Department of Radiology informatics events and needs with executive health system leadership teams.				
6	Radiology Scheduling and Access	Member	6/2020	Performance Svcs.
Intent and Outcomes: Optimizing base scheduling templates and clinical operations to support more effective scheduler workflows, in particular with first available scheduling. Improving channels to streamline radiology scheduling and communications in MyChart, and direct patients to the optimal site. Redesign physician and patient directed scheduling.				
7	Radiology Operations Committee (ROC)	Co-Chair	10/2022	With Holly Brookover and Erik Paulson
Intent and Outcomes: Oversee radiology operations as leads for imaging service line. Subcommittees below ROC: People, Access, Growth, Informatics, Quality & Safety, Revenue Cycle, Capital, and Research & Innovation.				
8	Radiology Operations Committee Access Subcommittee	Member	10/2022	Charlene Montoya
Intent and Outcomes: Oversee radiology hours of operations expansion and slot optimization.				
9	Radiology Oversight Committee Informatics Subcommittee (ROC IS)	Co-Chair	10/2022	With Brenda Boardwine and Seth Avery
Intents and Outcomes: Governance and prioritization body for Radiology IT and informatics.				
10	Radiology Oversight Committee Capital Subcommittee	Member	10/2022	Megan Churchill and Jared Christensen
Intents and Outcomes: Planning and budget preparation body for imaging.				
11	Radiology Value Analysis Team	Co-Chair	1/2023	With Holly Brookover
Intent and Outcomes: Optimize the Duke Radiology procurement process to pilot test, purchase, and replace medical devices.				
12	Solis Breast Imaging Joint Venture	Member	4/2023	Sara Holleran
Intent and Outcomes: Vet, scope, and plan operations and strategy for joint venture between Duke Health and Solis Mammography for retail breast screening locations, physician workflow and referral flow into Duke.				
13	Departmental Informatics Superusers	Chair	8/2024	Self
Intent and Outcomes: Empower 2 informatics-oriented physicians per radiology division as points for various informatics imaging projects.				

14	Imaging Service Line Executive Leadership	Co-Chair	2/2025	With Holly Brookover and Erik Paulson
Intent and Outcomes: Small group of executive decision-makers for the imaging service line.				

Duke Health Enterprise and Department of Radiology Committees: Ended

#	ENDED Enterprise & Radiology Committee	Role	Span	Chair(s)
1	Clinical Radiology IT Governance	Founder, Co-Chair	1/2011-7/1/2023	With Brenda Boardwine
Intents and Outcomes: Governance and prioritization body for Radiology IT and informatics tickets and projects, with an eye toward appropriate and standardized workflows for image capture, storage, indexing, management, distribution, viewing, sharing, and reporting, with oversight spanning from spanning to revenue. Transitioned from IT Governance to ROC IS with the creation of the Radiology Oversight Committee.				
2	DHTS Radiology Informatics and IT Support (RIITS)	Co-Chair	3/2011-6/2013	With Harrell Chotas
Intents and Outcomes: Discuss and project plan defined and undefined IT needs of Department of Radiology. Decommissioned in DHTS re-organization preparing for EHR go-live.				
3	DEDUCE*Text Natural Language Processing Ontological Search Development	Chair and Developer	4/2011-8/2011	Self
Intent and Outcome: Build free text natural language processing ontological search engine of radiology examination reports for research, educational, and administrative purposes into the Duke Enterprise Data Unified Content Explorer (DEDUCE).				
4	Duke Master of Management of Clinical Informatics Leadership Steering Council	Member	6/2011-6/2015	Randy Sears
Intent and Outcome: Guide curriculum and practicum projects for Duke MMCI students. Decision made by Dr. Roth to transition off Council.				
5	DUHS EHR Steering Governance Committee	Radiology & Imaging Member	7/2011-10/2013	Jeff Ferranti & Ted Pappas
Intent and Outcome: Governance, design, implementation, champion culture change for new DUHS-wide EHR, implemented June 2013 at university hospital, and March 2014 at community hospitals. Decommissioned at EHR go-live.				
6	Dept. of Radiology Clinical Management Committee (CMC)	Member	8/2011-1/2013	Geoff Rubin
Intent and Outcome: Oversight group spanning all DUHS hospital Department of Radiology toward all facets of imaging care. Committee terminated with chair transition.				
7	Dept. of Radiology Information Technology KPIs Committee	Co-Chair	9/2011-9/2013	With Harrell Chotas

8	Dept. of Radiology Innovation KPIs Committee	Co-Chair	9/2011-9/2013	With Daniel Boll
9	Dept. of Radiology Utilization KPIs Committee	Member	9/2011-9/2013	Jay Baker
Intent and Outcome: Key Performance Indicator committees commissioned by Chair to propose top metrics for tracking of important department performance measures. Goal met to identify and approve KPIs. KPIs never consistently captured because of limited department and enterprise analytics infrastructure.				
10	Duke Health Multimedia Technology Committee (MMTC)	Member	11/2011-6/2013	James Tchong & Billy Willis
Intent and Outcome: Understand and govern current hardware and software infrastructure used with common care needs by DUHS providers. Decommissioned at EHR go-live.				
11	DUHS Radiation Safety Committee	Member	1/2012-12/2012	Terry Yoshizumi
Intent: Enterprise oversight of radiation emitting modalities and radiation safety. Rotated off.				
12	Dept. of Radiology Strategic Planning Committee	Member	4/2012-11/2012	Jay Baker
Intent and Outcome: Department strategic planning process to guide near and medium future initiatives. Goal met to publish a department-wide, relatively agreed-upon strategic plan. Plan used only briefly after a change in Chair leadership.				
13	Duke Health Committee on Health Information Policies and Services (CHIPS)	Member	4/2012-3/2014	James Tchong
Intent and Outcome: Understand and govern DUHS health information management documentation practices. Decommissioned soon after EHR go-live because of redundant scope.				
14	Duke University Hospital North Carolina Award for Excellence (NCAfE)	Member	4/2012-8/2012	Kevin Sowers
Intent and Outcome: Win NCAfE designation for Duke University Hospital. Achieved (first hospital in NC).				
15	DHTS CMIO Cabinet	Member	6/2012-12/2014	Jeff Ferranti
Intent and Outcome: Direct reports for CMIO. Committee evolved with new CHIO into CHIO-CAO Cabinet.				
16	DUHS Duke MedLink	Co-Chair	10/2012-3/2014	With Dev Sangvai
Intent and Outcome: Grow the referring physician network outside of Duke. Onboarding, compliance, consults/labs/imaging results routing back to referrers. Rotated away from committee.				
17	Duke Health EHR Enhancement Review Board	Member	12/2012-6/2013	Genie McPeck
Intent and Outcome: Plan the first optimization projects after EHR go-live. Decommissioned at EHR go-live.				
18	Duke Medicine/Duke Health Baldrige Award Committee	Member	2013, 2014, 2016	Bill Burton
Intent and Outcome: Contributions to Duke's Malcolm Baldrige Award for Performance Excellence application, including application content writing, editing, and site visit meetings with Examiners. Duke got site visits in 2013 & 2016 (approximately 10-15 sites per year are visited), but has not won the award.				

19	Enterprise Imaging IT Strategic Planning Committee	Founder, Chair	3/2013-12/2016	Dr. Roth
• Intent: Set Duke Health imaging Goals, Strategies, Initiatives, Outcomes, and Metrics. • Outcome: Evolving strategic plan, culminating in 2016-2020 IT strategic direction for Duke Health, including enterprise imaging Goals, Strategies, Initiatives, Outcomes, and Metrics. Imaging IT strategic plan links directly to Duke Health Strategic Plan Goals and Strategies. Initiatives described with low/medium/high priority, operational dependencies, expected barriers, owning governance stakeholder group, responsible teams and people, Expected Job Results, funding source & fiscal year, and relevant IT service management tickets. • Committee structure disbanded as projects moved forward appropriately.				
20	Duke Radiology Safety Walk Rounds	Reviewer	1/2014-10/2017	Tracy Jaffe
Intent: Radiology leadership on site review of potential patient safety risks.				
21	Duke Health Medical Radiation Center	Member	3/2014-7/2017	Don Frush
Intent and Outcome: Multi-faceted collaboration toward patient safety radiation emitting modalities. Decision to rotate away from the committee.				
22	Duke Health Inpatient Optimization Council (IOC)	Member	3/2014-11/2014	Lisa Pickett & Brian Griffith
Intent and Outcome: Early inpatient EHR governance committee. Would evolve into current CITOC 11/2014.				
23	Duke Health Ambulatory Optimization Council (AOC)	Member	3/2014-11/2014	Chris Samples & David Zaas
Intent and Outcome: Early outpatient EHR governance committee. Would evolve into current CITOC 11/2014.				
24	Radiology Quarterly Operations Report Out Committee	Member	8/2014-12/2020	Holly Brookover
Intent: Quarterly presentation of Department of Radiology informatics events and needs with executive health system leadership teams.				
25	Duke Health Clinical Information Technology and Oversight Committee (CITOC)	Member	9/2014- 11/2018	Brian Griffith & David Attarian
Intent and Outcome: Enterprise wide oversight of IT operations and EHR optimizations. Enterprise Committee just stopped having meetings.				
26	Duke Radiology Capital & Operational Budget IT Review Team	Member	6/2015-7/2018	Britt Crewse
Intent: Vet all Clinical Engineering, IT, & informatics Radiology capital and operational budget expenditures.				
27	Duke Institute for Health Innovation Request for Application Pilot Review Committee	Reviewer	2016 and 2017 award years	Katie McMillan
Intent and Outcome: Selecting the most worthy annual innovation opportunities within Duke Health for pilot project development.				
28	Duke Health Ambulatory Clinical Operations Oversight Council (ACOOOC)	Member	1/2016-2/2017	Chad Seastrunk

Intent and Outcome: Enterprise wide oversight of ambulatory clinical operations. Would evolve into current CITOC.				
29	Duke Radiology 3D Printing Task Force	Member	1/2016-12/2016	Erik Paulson
Intent and Outcome: Preliminary rollout of 3D printing workflows from referrers to DUHS Multi-D Lab.				
30	Duke-led North Carolina Image Exchange Task Force	Chair	3/2016-3/2017	Self
Intent and Outcome: - Directed integration and features requirements, evaluation, committee approvals, vendor selection, contracting, procurement, installation, and testing of Nuance PowerShare, Duke's and North Carolina's primary image sharing platform. No clinical electronic image exchange was performed at Duke previously, and little in the state of North Carolina. Approximately 20,000 radiology and cardiology studies electronically shared to Duke monthly, including for emergency patient care transfer workflows. Grass roots outreach led by Dr. Roth has led to Duke connecting to more than 1,000 participating North Carolina, United States, and international hospitals and clinics, including almost all commonly sharing facilities within 50 miles. - Led team to redesign and standardize DUHS-wide Image Library (File Room) workflows for patient registration, electronic image intake, image sending to outside, outside image requesting, image incorporation from CD and outside sharing, including Request to Store order. - Significant improvements to PHI security and operational budget savings (low six figures, per year) due to minimized shipping, envelopes, toner, media, and staff time.				
30	Enterprise Imaging Governance Committee (IGC)	Founder, Chair	5/2016-1/2017	Self
Intent and Outcome: - Sprint governance body to acknowledge and approve 2016-2020 strategic plan for image capture, storage, indexing, management, distribution, viewing, sharing, reporting, and corresponding compliant workflows for all image types (still image, video, audio, multimedia) captured across all Duke Health specialties. - Owns most relevant aspects of imaging modalities, technical infrastructure, software, hardware, analytics, procurement, capital budgeting, and operational budgeting for imaging of most Duke Health specialties. - Informatics and design resource to develop, innovate, and advance image management across multiple dimensions, including quality, efficiency, effectiveness, cost, communication, and knowledge sharing. - On demand group of faculty and learner physicians across many imaging specialties, imaging sites for all hospitals and ambulatory settings. - Committee structure disbanded as projects moved forward appropriately.				
31	Duke Radiology Department Website Development	Co-Chair	7/2017-8/2019	Dara Ferguson
Intent: Redesigned Duke Radiology website with new vendor (Durham-based Kompleks Creative). Content development for Duke Radiology: Our Focus is You YouTube video. September 30, 2020.				
32	Point of Care Ultrasound Workgroup	Co-Chair	3/2018-7/2020	With Erica Peethumngosin and Yuriy Bronshteyn
Intent and Outcome: Build point of care ultrasound image capture and reporting compliant and effective clinical and revenue processes across all DUHS POCUS sites.				

33	Value Based Analytics and Benchmarking Task Force	Member	4/2018-8/2018	Christina Crosby
Intent and Outcome: Selected software to benchmark current Duke care metrics with goal to go at risk.				
33	Clinical Efficiency and Decision Support Benchmarking Workgroup	Member	8/2018-11/2018	Bill Schiff
Intent and Outcome: Leverage and drive IBM Truven decision support for improved quality, care efficiency, and access.				
34	Radiology Utilization Optimization Committee	Co-Chair	6/2019-8/2024	With Sara Holleran
Intent and Outcome: - Improve red rate (inappropriately ordered studies) and unscored rate. From April 2021-September 2021, 30% decrease in health system red rate. - Stood up team and dashboarding within PDC, PRMO, and DH to support physician engagement around high yield imaging. - Obtained CMS qPLE status June 27, 2022 ahead of CMS PAMA deadline with Duke CDS developed for low back pain. Led Duke development of AUC development process, low back pain AUC and evidence table, and Epic integration alongside 36 committee members (22 physicians). - Developed YouTube educational video and email education to physicians.				
35	Radiology Scheduling and Access	Member	6/2020	Performance Svcs.
Intent and Outcomes: Optimizing base scheduling templates and clinical operations to support more effective scheduler workflows, in particular with first available scheduling. Improving channels to streamline radiology scheduling and communications in MyChart, and direct patients to the optimal site. Redesign physician and patient directed scheduling.				
36	DUHS Enterprise Strategic Planning Cost of Care Workgroup	Member	8/2020-1/2021	Morgan Jones
Intent and Outcome: Developed recommendations for DUHS and PDC strategic planning for increasing cost of care awareness, decreasing enterprise cost of care, and revenue stream development.				
37	Results Release Information Blocking Workgroup	Member	11/2020-3/2021	Momen Wahidi
Intent and Outcome: Prepare for 21st Century Cures Act, increase documentation transparency for patients, and gain multi specialty Duke consensus on clinical information release delays to the patient.				
38	Department of Radiology Executive Strategic Planning Committee	Member	2/2021-3/2022	Jared Christensen
Intent and Outcomes: New departmental strategic plan development.				
39	Duke Performance Services Retreat Content Development	DUHS Leader Speaker	4/2021-4/2021	With Bill Burton and Sharon Olfati
Intent and Outcome: Chosen as DUHS leader interviewee for DUHS Performance Services Retreat. Comments incorporated into Duke Health Performance Services Retreat video (0:20, 3:46).				

40	WellCare North Carolina Utilization Mgmt. Committee	Member	4/2021-12/2022	Genie Komives
Intent and Outcome: WellCare is one of five licensed Medicaid providers in North Carolina. Serve as imaging representative and the only Duke Health committee member on Utilization Management Committee, the group defining payer imaging and non-imaging coverage policies. Write several NC Medicaid coverage policies.				
41	Value Based Task Force	Member	2/2023-8/2023	David Attarian
Intent and Outcome: Improve care outcomes and decrease the cost of care across all PDC and Duke Health locations. Pursues high visibility and high opportunity value-based initiatives.				
42	Margin Improvement	Member	1/2024-1-2025	Derek Robinson
Intent and Outcome: Monthly meeting of clinical and administrative leadership managing portfolios of margin improvement projects.				
43	Hospital CMOs	Member	4/2025-7/2025	David Gallagher
Intent and Outcomes: Coordinate CMO activities across DUHS.				
44	Duke Lake Norman Hospital Senior Leadership Team	Member	4/2025-7/2025	Kristie Barazsu
Intent and Outcomes: Responsible for conveying and coordinating CMO activities across Duke Lake Norman Hospital (DLNH).				
45	Duke Lake Norman Hospital Tier 3 Huddle	Member	4/2025-7/2025	Kristie Barazsu
Intent and Outcomes: Respond to recent events, coordinate the day's activities, celebrate accomplishments, knowledge share key messages.				
46	Duke Lake Norman Hospital Executive Leadership Briefing	Member	4/2025-7/2025	Greg Pauly
Intent and Outcomes: Respond recent events and key initiatives to system leadership.				
47	Duke Lake Norman Hospital Medical Executive Committee	Member	4/2025-7/2025	With Steven Bradley
Intent and Outcomes: Partner with hospital chief of staff to				
48	Duke Lake Norman Hospital Post Integration 30-60-90	Member	4/2025-7/2025	Kristie Barazsu
Intent and Outcomes: Coordinate activities for the first 30, 60, and 90 days across all workstreams				

Duke Health Enterprise and Department of Radiology Team and Strategic Oversight:

Dr. Roth serves as point imaging physician in operations and DHTS for teams below.

DHTS Enterprise Imaging (Radiant and Image Management Services): • Director: Seth Avery • Strategic Coordinator: Brenda Boardwine • 23 team members	• Epic: radiology and enterprise imaging, from scheduling through revenue cycle. • CareSelect: qualified clinical decision support mechanism (qCDSM) for radiology (ACR), cardiology (ACC), oncology (NCCN), nuclear medicine/molecular imaging (SNMMI), and internal medicine (Choosing Wisely) imaging appropriateness. • Duke Image Archive: long term image storage and indexing for all Duke clinical multimedia, diagnostic and documentation imaging, and some research image data. • Visage 7: radiologist clinical PACS today. Enterprise viewer, Visage cloud archive, and routing layer beginning approximately June 2022. • Nuance PowerShare: interfacility image exchange and CD management. • TeraRecon iNtuition: radiology and cardiology advanced visualization for clinical interpretations. • Syngo Via: dual energy Siemens CT modality processing. • HeartFlow: CT-Fractional flow reserve CT angiography coronary artery stenosis fluid flow. • Riverain: cardiothoracic imaging AI. • MIMVista: PET image viewing. • GE Xeleris: nuclear cardiology image review. • Cydar, Tornier BluePrint, Synaptive: All surgical planning and visualization. • In Vivo DynaCAD Prostate and UroNAV: Prostate cancer diagnostics and presurgical planning. • In Vivo DynaCAD Lung & DynaLync: Lung cancer screening. • In Vivo NeuroQuant: brain atrophy and demyelination quantification AI. • Philips Portal: advanced abdominal image visualization platform. • iSchema RAPID: Emergent CT perfusion analysis for acute stroke cases. • Scanslated: Patient portal readable translations of radiologist diagnostic reports. • Butterfly IQ: Point of Care Ultrasound (POCUS) in DUHS EDs, ICUs, and ambulatory settings. Associated integrations for metadata capture and revenue generation. • Vision Radiology: Interfaces for DRH and DRAH Radiology nighthawks.
DHTS Clinical Application Support: • Director: Tom Daigle • Sr. Manager: Chris Briell • 8 team members for many enterprise apps and specialties	• Nuance PowerScribe: primary radiologist report generation. Build and maintenance owner of all ~90 neuroradiology Site Auto Texts. • Nuance Dragon: radiologist report voice-to-text embedded in Epic EHR for breast imaging and bone density exams. • Fuji Synapse: nuclear cardiology dictation. • GE Viewpoint: Radiology Fetal Diagnostic Clinic image storage and reporting. • NMIS/Pinestar: radiopharmaceutical documentation and tracking. • Bracco Nexo: contrast power injector documentation and protocol management. • QSight: interventional inventory management. • Bio-optronics: Multi-D Imaging Lab workflow management, weblog, tumor report registry, and billing.

DHTS Clinical Engineering: - Asst. Dir: Ben Scoggin 14 radiology members	Data and metadata communications to and from all 1220 Duke Health imaging modalities.
DHTS Field Services: - Mgr: Nathan Russell 6 radiology members	Design maintenance and policies of all workstations for radiology PACS, dictation, and personal device integration on campus and in radiologist homes.
Department of Radiology IT Operations Research Support (DORITOS):	- Decreased research lab and IT support from four FTEs (two reporting to Dr. Roth) to one total. - Supported from 2011 to 2020.
As Needed Teams	Information Security, Data Center, Service Desk, Interfaces, Infrastructure, Procurement, Duke Patient Revenue Management Organization CodeRyte natural language processing billing software, and new construction, et cetera on demand.
Radiologist & Vendor Support	Dr. Roth serves as contact point for vendors and for radiologists to channel criticisms or enhancement requests.

Notable Duke Health Informatics Projects Overseen:

1) Enterprise Epic Electronic Health Record: Imaging

Epic Electronic Health Record workflow design, build, education and training, implementation, “at-the-elbow” support, championing culture change, optimization prioritization, cross specialty integrative work. Many ambulatory and inpatient POC specialties on Radiant.

Notable Completed Initiatives:

- Redesign oversight of Radiology scheduler, nurse, technologist, physician, file room, and revenue workflows for all radiology subspecialties, all clinical departments touching imaging services, as well as administrative personnel, at all Duke sites.
- Oversight of all **105 protocol SmartForm, 34 pre-procedure, post-procedure, medication, and admission radiology ordersets, and ~1,900 orderable/performable procedures (EAP).**
- Oversight and design of clinic and patient direct appointment scheduling workflows.
- Design of Best Practice Advisory (BPA) popups: Contrast allergy and renal dysfunction warnings to referrers. Imaging patients with an active Do Not Resuscitate order warning to referrers.
- Oversight of radiology and non-radiology image capture and resulting workflows, such as point of care ultrasound, endoscopic still image and video capture, others.
- Oversight of radiology **Meaningful Use Stage 1 attestations** from Epic
 - **100% successful radiologist attestations** in 2012, 2013, 2014, 2015, and 2016, with 22 radiologist CMS audits cleared.
 - **\$1,569,055** Department of Radiology CEHRT incentive funds into physician practice 2012-2016.
- Oversight of 2015-2016 Epic departmental report and analytics build. Of note, the Duke Department of Radiology dashboard development was the **first Epic dashboard ever built primarily for radiologists.**
- **Oversight of February 2018 Epic-driven imaging workflow transition**
 - \$13,871 under budget. Three minutes of anticipated clinical downtime. Implemented single sign-on (down from 5 logins). Standardized application timeouts across multiple applications. New RFID badge readers, new 27” workflow monitors. Windows 10 installed.
 - New, 8 level Interpretation Priority for radiologists to better prioritize most appropriate studies being reviewed first. **Prioritization schema now built into Epic Foundation for all customers to use.**
 - Image Library CD and PowerShare workflow design, build, training, and implementation for study upload, study sharing to externals, and external study solicitation.
 - Unexpected Findings, Peer Review, Discrepant results, Great Call, Hyperlinks, Wet Reads to replace GE Centricity PACS sticky notes, 67 new Epic Reading Work Lists, relevant patient and imaging study information delivery to point of care, digitized technologist paper contrast forms.
- **Oversight of Epic-driven resulting: breast imaging, bone density, and vascular interventional.**
- **Expected delivery of Epic enterprise to Duke Lake Norman Hospital fall 2025 as hospital Interim Chief Medical Officer.**

2) Enterprise Image and Video Storage and Viewing

Enterprise Imaging - Outcomes (2015-current):

Enterprise Image and Video Storage (Duke Image Archive/DIA):

- Responsible for 2010-2011 enterprise imaging vendor neutral archive strategic planning, technical requirements definition, Request for Information, and 150 question Request for Proposal. Evaluated

responses from 10 vendors and chose TeraMedica on basis of standards adherence, DICOM Part 10 media interchange functionality, native non-DICOM image capture capabilities, and database schema. Oversaw contracting, procurement, installation, testing, and implementation.

- Complete and accurate historical **220 terabyte data migration** and exceptions reconciliation in 2012 to migrate data into the vendor neutral archive.
- Developed EHR driven, orders based workflow for point of care devices.
- Incorporated anesthesiology, vascular, electrophysiology, obstetric, urology, endocrinology, research, educational case file, intraoperative endoscopy, and modality raw image data physical locations across DUHS into the DIA and Epic via orders-based and encounters-based approaches.
 - **Compliance and revenue improvement** from point of care ultrasound in Departments of Surgery (Emergency Medicine) and Anesthesia.
 - **Workflow efficiency, stored image quality, image data indexing and EHR image distribution** improved in all departments implemented.
 - Uncovered and rectified Duke providers performing and billing without appropriate credentials.
 - **Improved PHI security and medicolegal risk avoidance** in several departments previously not storing, or capturing images with embedded PHI captured on personal smartphones.
 - **Improved opportunities for revenue capture**
 - **Workflows designed for peer review and privileging**
- Dr. Roth directs historical and future imaging data capture and indexing from all clinical departments, and all image-based clinical reports (~550 point of care ultrasound modalities (106 models, 22 vendors), >150 endoscopic modalities, multiple operative suite still image and video capture systems, and distributed procedural fluoroscopy and radiography modalities.
- Responsible for the strategic direction of replacing all image routers and archiving into a single enterprise viewer system (Visage Imaging), transition to cloud-based public storage, and associated research PACS implementation for artificial intelligence development and translation. Project in process. **Expect to save approximately 3M over 5 years.**

Enterprise Image and Video Viewing (Duke Image Viewer/DIV):

- **Client Outlook eUnity viewer** integrated into Epic desktop and mobile for referring physicians (not radiologists) in July 2018, and for radiologist viewing to replace Centricity web October 2018.
- Fully FDA 510(k) class II compliant for diagnostic review, HTML5 browser based viewer with embedded multi-planar reformat and volume rendering capabilities.
- Duke Med Link referring physician portal, Haiku and Canto Epic mobile apps, and Duke MyChart integrations.
- Selection process involved feedback from more than 100 physicians and 25 leadership physicians vetting the platforms on a standard dataset from all imaging specialties.

Notable Hardware Installations and Upgrades:

Installs: Selection, exclusion, prioritization, implementation, and education of features.

- 2011: DEDUCE*Radiology Text, MIMVista, Fuji Synapse; TeraRecon iNtuition (DUH only); Department Ultrasound Teaching File, Osirix 64-bit.
- 2012: Duke Image Archive, Philips Portal; SyngoVia, InVivo NeuroQuant/DynaCAD/UroNAV, CodeRyte.
- 2013 Epic EHR Go Live:
 - June 21, 2013 = Epic at Duke University Hospital, 2012 version.
 - March 1, 2014 = Epic at Duke Raleigh Hospital and Duke Regional Hospital. 2012 version.
- 2014: Bracco Nexo, Intelimage.

- 2015: Riverain, Penrad (Bone density).
- 2016: Nuance PowerShare, HeartFlow, Ticker Tape.
- 2017: ACR Select Clinical Decision Support, Logitech Gaming software and gaming mice.
- 2018: Duke Image Viewer (Client Outlook eUnity) for non-radiology image viewing (ie. POCUS, scopes), ACR Select business intelligence dashboards, Radium, iSchema.
- 2018 Epic EHR:
 - May 6, 2018 = Epic-driven radiologist workflow.
 - Software: Epic reading workflow, Caradigm Single Sign-On, Windows 10
 - Hardware: Standardized Barco Coronis 6MP LED diagnostic monitors, standardized Lenovo 27" workflow monitor for reading worklists, EHR, and dictation, WaveID RFID badge readers
- 2019: Epic breast reporting module, CRA Health breast cancer risk modeling, Duke Image Viewer (Client Outlook eUnity) for enterprise/radiology viewing/MyChart/Duke MedLink.
- 2020: Imaging Redesign 1.0 (February 2, 2020):
 - Visage Imaging chosen after 10 question RFI, 200 question RFP, plus on site demos
 - Software: Visage Imaging Radiology Image Viewer, Imprivata Single Sign-On, Candelis routing of all 259 radiology modalities to new Epic DICOM modality worklists.
 - Hardware: Logitech gaming keyboards.
 - Process: Revisioning of research data storage and workflow, teaching file, and conference workflows
- 2021: Radiologist home workstation build and deployment
- Planned 2022: Imaging Redesign 2.0
 - Visage Imaging archive, routing, and enterprise-wide viewer deployment.

Noteworthy Upgrades: Selection, exclusion, prioritization, implementation, and education of features.

- GE Centricity PACS: Multiple upgrades since install; largest June 2011 from version 2.5 to 3.2, and 3.2 to user interface 4.0.3 in May 2014.
- Nuance PowerScribe:
 - October 2012. PowerScribe 5.0 to PowerScribe 360 version 1.1.
 - February 2015. PowerScribe 360 version 1.0 to 2.5.
 - March 2017. PowerScribe version 2.5 to 3.5.
 - May 2020. PowerScribe version 3.5 to 4.0.
- Penrad (Breast imaging): February 2014. Version 4.8.97 to 6.1.58 and expanded from Duke University Hospital only to enterprise-wide.
- Duke Image Archive: Multiple upgrades since install.
 - August 2015 to 6.0.2
 - July 2016 to 6.1.4.
 - December 2017 to 6.4.3.1, enabling machine learning research access from Duke's Protected Access Computing Environment via DICOMweb API
 - May 2019 to 6.9.3 b3
 - March 2021 to 7.1.2.2 b6
- Epic:
 - September 1, 2014. Duke Health, 2012 to 2014 version.
 - September 11, 2016. Duke Health, 2014 to 2015 version.
 - October 2017. Duke Health, 2015 to 2017 version.
 - October 2018. Duke Health, 2017 to 2018 version.
 - August 2020. Duke Health. 2018 to February 2020 version.
 - April 2021. Duke Health. February 2020 version to August 2020 version.
 - October 2021. Duke Health. August 2020 to May 2021 version.
- TeraRecon iNtuition: February 2015. Consolidated and sunsetted 5 separate DUHS TeraRecon contracts - DUH Radiology, DUH Multi-D Lab, DRAH Cardiology, DUH Heart Center, and DUH

Downstream Server - with heterogeneous hardware, software and support, into one upgraded enterprise platform with contracted support and training.

- Outcomes: TeraRecon iNTuition re-deployed with shared enterprise-wide licenses, upgraded hardware and software, and better uptime both to Radiology and Heart Center. DHTS support transitioned from Departmental staff to DHTS. TeraRecon extended to DRAH Radiology.
- ACR Select CDS:
 - August 2018: Version 11 to 14.
 - May 2019: Version 14 to 15. Began requiring CDS structured indications.
 - July 2020: Version 15 to 16. Made available AI-predicted Reasons for Exam.
 - November 2021: Version 16 to 18. Significantly expanded Am.Coll.Card & NCCN guidelines.
- Radiologist Home Workstations (COVID support):
 - Winter 2021: \$552,000 cost avoidance after negotiating with Barco (\$12K monitor dropped to \$3,565).

Sunsetted Software and Hardware:

1. Replacement of Radiology Network: Migration off 10+ year old home grown network. March 30, 2013.
 - Outcome: Replaced with 1G DUHS-wide network.
2. Radiology information system replacements as part of Epic EHR deployment:
 - a. Duke University Hospital: QuadRIS Radiology Information System. June 21, 2013.
 - b. Duke Raleigh Hospital: Meditech Radiology Information System. March 1, 2014.
 - c. Duke Regional Hospital: Siemens Radiology Information System. March 1, 2014.
 - Outcome: Large cost avoidance.
5. McKesson ultrasound PACS. Replaced with GE Centricity PACS and Barbara Hertzberg Ultrasound Teaching File. September 20, 2011.
 - Outcome: \$110,096 annual operating cost avoidance, plus decreased support requirements for staff.
6. NuCard nuclear cardiology interpretation software. Replaced with Fuji Synapse. June 1, 2012
 - Outcome: Only support costs savings as this was end of useful life and home grown.
7. Vital Images Vitrea (advanced visualization viewer). Replaced by TeraRecon at DUH January 2014 and DRH March 2015.
 - Outcome: Only support costs savings as this was end of life and maintenance contract expired.
8. Order Facilitator (software for radiology non-Duke referral generation). Replaced by Duke MedLink. March 30, 2015.
 - Outcome: \$75,000 annual operating cost avoidance.
9. Voxport (little used research PACS, replaced by local systems and DIA). September 30, 2015.
 - Outcome: \$14,820 annual operating cost avoidance, plus decreased support requirements for staff.
10. Intelimage de-identification and anonymization software. January 2017. Replaced by user-level decisions on image de-identification.
 - Outcome: \$27,000 annual operating cost avoidance, plus decreased support requirements for staff.
11. Penrad. Breast imaging structured reporting. February 26, 2019. Replaced by Epic.
 - Outcome: \$14,000 annual operating cost avoidance.
12. inVivo Lung: Lung cancer screening platform. December 5, 2019. Poor product and not commonly used.
 - Outcome: \$90,000 annual operating cost avoidance.
13. GE Centricity PACSweb. Enterprise viewer for DUHS. June 16, 2018. Replaced by Client Outlook eUnity (Duke Image Viewer).
14. GE Centricity PACS: Diagnostic radiology viewer. February 23, 2020. Replaced by Visage Imaging (Radiology Image Viewer).

- Outcome: Large annual operating cost avoidance offset by higher subscription costs for Visage.
15. Hologic Breast Imaging PACS: Diagnostic breast viewer. February 23, 2020. Replaced by Visage Imaging (Radiology Image Viewer).
 - Outcome: No cost avoidance (software packaged with other apps)
 16. Penrad: Breast imaging and bone density reporting. June 2021. Replaced by Epic.
 - Outcome: \$22,000 annual operating cost avoidance.
 17. Imaging Infrastructure Consolidation: FUJIFILM TeraMedica Evercore vendor neutral archive, Candelis Image Routers, and Client Outlook eUnity Enterprise Duke Image Viewer all to be replaced by Visage Imaging infrastructure plus public cloud storage. Expected January 2023.
 - Outcome: DUHS Finance calculates \$3,100,000 anticipated annual operating hardware and software cost avoidance over seven years.