

# Danny R. Hughes

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## Virginia Office:

Harvey L. Neiman Health Policy Institute  
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## EDUCATION

### Ph.D. in Economics, May 2005

University of Georgia, Athens, Georgia

Research Interests: Applied Econometrics, Health Economics, Industrial Organization,  
Productivity and Efficiency Analysis, and Public Management of Innovation and R&D

### B.S. in Economics with Honor, June 1998

Georgia Institute of Technology, Atlanta, Georgia

Certificate in Land Development, Georgia Institute of Technology City Planning Program

## PROFESSIONAL EXPERIENCE

**Professor**, School of Economics, Georgia Institute of Technology (08/2018 – Present)

**Executive Director and Senior Research Fellow**, Harvey L. Neiman Health Policy Institute, Reston, Virginia (08/2018 – Present)

**Visiting Professor**, School of Economics, Georgia Institute of Technology (08/2017 – 07/2018)

**Senior Director, Health Policy Research and Senior Research Fellow**, Harvey L. Neiman Health Policy Institute, Reston, Virginia (08/2012 – 07/2018)

**Affiliate Faculty**, Department of Health Administration and Policy, George Mason University (01/2013 – 07/2017)

**Assistant Professor**, Department of Health Administration and Policy, University of Oklahoma Health Sciences Center (01/2011 – 08/2012)

**Assistant Director, Health Policy Research**, American College of Radiology, Reston, Virginia (09/2008 – 01/2011)

**Special Member Graduate Faculty**, Department of Civil and Environmental Engineering, University of Maryland (08/2008 – 12/2011)

**Assistant Professor**, Department of Economics and Finance, University of South Alabama (08/2004 – 08/2008)

**Research Fellow**, Logistics Management Institute, McLean, Virginia (03/2003 – 07/2005)

**Research Associate**, Center for Economic Development Research, University of South Florida (03/2002 – 03/2003)

**Research Assistant**, Carl Vinson Institute of Government, University of Georgia (Spring 2001)

**Graduate Instructor**, Department of Economics, University of Georgia (05/1999 – 12/2002)

**Analyst, Technology Acquisitions**, Tecolote Research, Bedford, Massachusetts (10/1998 – 10/2000)

**Corporal – Nuclear, Biological, and Chemical Operations Specialist**, U.S. Army, Fort Carson, Colorado (08/1992 – 07/1995)

## REFEREED PUBLICATIONS

(\* *Indicates publications with students*):

### I. HEALTH POLICY AND HEALTH SERVICES RESEARCH

- [1] H. Yeung, M.L. Baranowski, R.A. Swerlick, S.C. Chen, J. Hemingway, **D.R. Hughes**, R. Duszak. "Utilization and cost of actinic keratosis destruction in the Medicare Part B fee-for-service population in 2007-2015," *JAMA Dermatology*, forthcoming
- [2] A. Rosenkrantz, J. Hemingway, **D.R. Hughes**, R. Duszak, B. Allen, J. Weinreb. 2018. "Evolving Utilization of Pre-Biopsy Prostate MRI in the Medicare Population," *Journal of Urology*, 200(1): 89-94
- [3] A. Prabhakar, R.V. Gottumukkala, J. Hemingway, **D.R. Hughes**, S. Patel, R. Duszak. 2018. "Increasing Utilization of Emergency Department Neuroimaging in Medicare Beneficiaries from 1994 to 2015," *American Journal of Emergency Medicine*, 36(4):680-683
- [4] D. Deyo, A. Khaliq, D. Mitchell, **D.R. Hughes**. 2018. "Electronic Sharing of Diagnostic Information and Patient Outcomes," *American Journal of Managed Care*, 24(1): 294-299
- [5] J. Langston, R. Duszak, V. Orcutt, H. Schultz, B. Hornherger, L. Jenkins, J. Hemingway, **D.R. Hughes**, R. Pruthi, M. Nielsen. 2017. "The Expanding Role of Advanced Practice Providers in Urologic Procedural Care," *Urology*, 106:70-75
- [6] W. Beckworth, M. Jiang, J. Hemingway, **D.R. Hughes**, D. Staggs. 2016. "Facet Injection Trends in the Medicare Population and the Impact of Bundling Codes," *The Spine Journal*, 16(9):1037-1041
- [7] M. Jiang, **D.R. Hughes**, R. Duszak. 2015. "Screening Mammography Rates in the Medicare Population before and after the 2009 US Preventive Services Task Force Guideline Change: An Interrupted Time Series Analysis," *Women's Health Issues*, 25(3): 239-245 (**Selected as Editor's Choice paper; Winner of Charles E. Gibbs Leadership Prize for best paper in 2015**)
- [8] M. Jiang, **D.R. Hughes**, C. Appleton, G. McGinty, R. Duszak. 2015. "Recent Trends in Adherence to Continuous Screening for Breast Cancer among Medicare Beneficiaries," *Preventive Medicine*, 73: 47-52
- [9] **D.R. Hughes**, M. Jiang, R. Duszak. 2015. "A Comparison of Diagnostic Imaging Ordering Patterns between Advanced Practice Clinicians and Primary Care Physicians following Office-based Evaluation and Management Visits," *JAMA Internal Medicine*, 175(1): 101-107
- [10] **D.R. Hughes**, A. Khaliq. 2014. "The Effect of Macroeconomic Conditions on the Care Decisions of the Employed," *Medical Care*, 52(2): 121-127
- [11] A. Rosenkrantz, N. Bilal, **D.R. Hughes**, R. Duszak. 2014. "National Specialty Trends in Billable Diagnostic Ultrasound in the Emergency Department Setting: Analysis of Medicare Claims Data," *American Journal of Emergency Medicine*, 32(12): 1470-1475
- [12] A. Khaliq, A. Mwachofi, **D.R. Hughes**, R. Broyles, D. Wheeler, R. Roswell, 2013. "The Current State of Electronic Health Record (EHR) Use in Oklahoma," *Journal of the Oklahoma State Medical Association*, 106(2): 53-56
- [13] **D.R. Hughes**, J. Sunshine, M. Bhargavan, H. Forman, 2011. "Physician Self-Referral for Imaging and the Cost of Chronic Care for Medicare Beneficiaries" *Medical Care*, 49(9): 857-864
- [14] **D.R. Hughes**, M. Bhargavan, J. Sunshine, 2010. "Imaging Self-Referral Associated With Higher Costs, Limited Impact On Illness Duration" *Health Affairs*, 29(12): 2244-2251
- [15] J. Sunshine, **D.R. Hughes**, C. Meghea, M. Bhargavan, 2010. "What Factors Affect the Productivity and Efficiency of Physician Practices?" *Medical Care*, 48(2): 110-117

## II. ECONOMICS AND MANAGEMENT SCIENCE

- [16] \*H. Zhang, C. Wernz, **D.R. Hughes**. “A Stochastic Game Analysis of Incentives and Behavioral Barriers in Chronic Disease Management,” *Service Science*, forthcoming
- [17] \*H. Zhang, C. Wernz, **D.R. Hughes**. 2018. “Modeling and Designing Health Care Payment Innovations for Medical Imaging,” *Health Care Management Science*, 21(1): 37-51
- [18] D. T. Mitchell, **D.R. Hughes**, N. Campbell. 2014. “Are Powerful Majorities Inefficient for Parties and Efficient for Taxpayers? An Analysis of Budget Maximization in the U.S.,” *Public Finance Review*, 42(1): 117-138
- [19] \*J. Eckhause, S.A. Gabriel, **D.R. Hughes**, 2012. “An Integer Programming Approach for Evaluating R&D Funding Decisions with Optimal Budget Allocations,” *IEEE Transactions on Engineering Management*, 59(4): 679-691
- [20] **D.R. Hughes**, D.T. Mitchell, \*D. Molinari, 2011. “Heeding the Call: Seminary Enrollment and the Business Cycle,” *Applied Economic Letters*, 18(5): 433-437
- [21] \*J. Eckhause, **D. R. Hughes**, S.A. Gabriel, 2009. “Evaluating Real Options for Mitigating Technical Risk in Public Sector R&D Acquisitions,” *International Journal of Project Management*, 27(4):365-377
- [22] **D.R. Hughes**, Y.W. Whitaker, D. Lee, J. Eckhause, 2008. “Advantages, Disadvantages, and Uses of Generalized Activity Networks for Schedule Estimation,” *Military Operations Research*, 13(3):27-40
- [23] M.H. Bonds, **D.R. Hughes**, 2007. “On the Productivity of Public Forest: a Stochastic Frontier Analysis of Mississippi School Trust Timber Production,” *Canadian Journal of Agricultural Economics*, 55(2):171-183

### III. RADIOLOGY JOURNALS

- [24] A. Rosenkrantz, M. Glover, S.K. Kang, J. Hemingway, **D.R. Hughes**, R. Duszak. “Volume and Coverage of Secondary Imaging Interpretation Under Medicare, 2003-2016,” *Journal of the American College of Radiology*, forthcoming
- [25] E. Morris, R. Duszak, A.K. Sista, J. Hemingway, **D.R. Hughes**, A. Rosenkrantz. “National Trends in IVC Filter Placement and Retrieval Procedures in the Medicare Population Over Two Decades,” *Journal of the American College of Radiology*, forthcoming
- [26] S.K. Kang, M. Jiang, R. Duszak, S. Heller, **D.R. Hughes**, L. Moy. “Use of Breast Cancer Screening and Its Association with Later Use of Preventive Services among Medicare Beneficiaries,” *Radiology*, forthcoming
- [27] A.M. Prabhakar, R. Gottumukkala, W. Wang, **D.R. Hughes**, R. Duszak. “Day of Week, Site of Service, and Patient Complexity Differences in Venous Ultrasound Interpreted by Radiologists vs. Non-radiologists,” *Journal of the American College of Radiology*, forthcoming
- [28] P. Sharp, P. Harkey, W. Wang, **D.R. Hughes**, N. Lall, R. Duszak. “Day of Week, Site of Service, and Patient Complexity Disparities in Musculoskeletal MRI Interpretations by Radiologists vs. Non-Radiologists,” *American Journal of Roentgenology*, forthcoming
- [29] A. Rosenkrantz, K. Hoque, J. Hemingway, **D.R. Hughes**, R. Duszak. 2018. “Unique Medicare Beneficiaries Served: A Radiologist-Focused Specialty-Level Analysis,” *Journal of the American College of Radiology*, 15(5): 734-739

- [30] A. Rosenkrantz, D. Prologo, W. Wang, **D.R. Hughes**, Z. Bercu, R. Duszak. 2018. "Opioid Prescribing Behavior of Interventional Radiologists Across the United States," *Journal of the American College of Radiology*, 15(5): 726-733
- [31] **D.R. Hughes**. 2018. "Can You Do Health Disparities Research with Publicly Available Datasets?" *Academic Radiology*, 25(5): 552-555
- [32] D. Rosman, A. Rosenkrantz, W. Wang, **D.R. Hughes**, R. Duszak. 2018. "Changing Utilization of Non-Invasive Diagnostic Imaging Over Two Decades: An Examination Family Focused Analysis of Medicare Claims Using the Neiman Imaging Types of Service Categorization System." *American Journal of Roentgenology*, 210(2): 364-368
- [33] A. Rosenkrantz, W. Wang, **D.R. Hughes**, R. Duszak. 2018. "Generalist vs. Subspecialist Characteristics of the United States Radiologist Workforce." *Radiology*, 286(3): 929-937
- [34] A. Rosenkrantz, W. Wang, **D.R. Hughes**, R. Duszak. 2018. "A County-Level Analysis of the United States Radiologist Workforce: Physician Supply and Subspecialty Characteristics," *Journal of the American College of Radiology*, 15(4): 601-606
- [35] G. Sadigh, **D.R. Hughes**, W. Wang, B. Allen, G. McGinty, E. Silva, R. Duszak. 2018. "Radiologist Professional Payments Following Mitigation of CMS' Multiple Procedure Payment Reduction (MPPR) Initiatives." *Journal of the American College of Radiology*, 15(3): 390-395
- [36] A. Prabhakar, J. Hemingway, **D.R. Hughes**, R. Duszak. 2017. "Changing Medicare Utilization of Minimally Invasive Procedures for the Treatment of Chronic Venous Insufficiency." *Journal of Vascular and Interventional Radiology*, 28(6): 818-824
- [37] S. Gyftopolous, P. Harkey, J. Hemingway, **D.R. Hughes**, A. Rosenkrantz, R. Duszak. 2017. "Changing Musculoskeletal Imaging Utilization: A Medicare Beneficiary Perspective Over Two Decades." *American Journal of Roentgenology*, 209(5): 1103-1109
- [38] A. Rosenkrantz, **D.R. Hughes**, R. Duszak. 2017. "Medicare Claims Data Resources: A Primer for Policy-Focused Radiology Health Services Researchers." *Journal of the American College of Radiology*, 14(12): 1538-1544
- [39] A. Rosenkrantz, W. Wang, \*S. Bodapati, **D.R. Hughes**, R. Duszak. 2017. "Private Practice Radiologist Subspecialty Classification Using Medicare Claims." *Journal of the American College of Radiology*, 14(11): 1419-1425
- [40] A. Degan, J. Hemingway, **D.R. Hughes**. 2017. "Medicare Utilization of Vertebral Augmentation 2001-2014: Effects of Randomized Clinical Trials and Guidelines on Vertebroplasty and Kyphoplasty." *Journal of the American College of Radiology*, 14(8): 1001-1006
- [41] A. Rosenkrantz, L. Ginocchio, D. Rosman, W. Wang, **D.R. Hughes**, R. Duszak. 2017. "Academic Radiologist Subspecialist Identification using a Novel Claims-Based Classification System." *American Journal of Roentgenology*, 208(6): 1249-1255
- [42] A. Rosenkrantz, G. Nicola, B. Allen, **D.R. Hughes**, J.A. Hirsch. 2017. "MACRA, Alternative Payment Models, and the Physician-Focused Payment Model: Implications for Radiology." *Journal of the American College of Radiology*, 14(6): 744-751
- [43] A. Rosenkrantz, **D.R. Hughes**, A.M. Prabhakar, R. Duszak. 2017. "County-Level Population Economic Status and Medicare Imaging Resource Consumption." *Journal of the American College of Radiology*, 14(6): 725-732

- [44] B. Allen, V. Carroll, **D.R. Hughes**, J. Hemingway, R. Duszak, A. Rosenkrantz. 2017. "Downstream Imaging Utilization Following Emergency Department Ultrasound Interpreted by Radiologists vs. Non-Radiologists: A Medicare Claims-Based Study." *Journal of the American College of Radiology*, 14(4): 475-481
- [45] N. Kokabi, J. Junn, M. Xing, J. Hemingway, **D.R. Hughes**, R. Duszak. 2017. "Non-Research Industry Payments to Radiologists: Characteristics and Associations with Regional Medical Imaging Utilization," *Journal of the American College of Radiology*, 14(3): 418-245
- [46] A. Rosenkrantz, G. Nicola, B. Allen, **D.R. Hughes**, J.A. Hirsch. 2017. "MACRA, MIPS, and the New Medicare Quality Payment Program: An Update for Radiologists." *Journal of the American College of Radiology*, 14(3): 316-323
- [47] A. Rosenkrantz, J.A. Hirsch G., B. Allen, W. Wang, **D.R. Hughes**, G. Nicola. 2017. "The Proposed MACRA/MIPS Threshold for Patient-Facing Encounters: What it Means for Radiologists." *Journal of the American College of Radiology*, 14(3): 308-315
- [48] S. Li, A. Dor, D. Deyo, **D.R. Hughes**. 2017. "The Impact of State Tort Reforms on Imaging Utilization," *Journal of the American College of Radiology*, 14(2): 149-156
- [49] **D.R. Hughes**, M. Jiang, G. McGinty, S. Shetty, R. Duszak. 2017. "An Empirical Framework for Breast Screening Bundled Payments," *Journal of the American College of Radiology*, 14(1): 17-23
- [50] W. Wan, C.M. Hawkins, J. Hemingway, **D.R. Hughes**, R. Duszak. 2017. "Enteral Access Procedures: An 18-year Analysis of Changing Patterns of Utilization in the Medicare Population," *Journal of Vascular and Interventional Radiology*, 28(1): 134-141
- [51] E. Silva III, G. McGinty, **D.R. Hughes**, R. Duszak. 2016. "Alternative Payment Models in Radiology: The Legislative and Regulatory Roadmap for Reform," *Journal of the American College of Radiology*, 13(10): 1176-1181 (**JACR Best of 2016 Award for Health Services Research & Policy**)
- [52] E. Silva III, G. McGinty, **D.R. Hughes**, R. Duszak. 2016. "Traditional Payment Models in Radiology: Historical Context for Ongoing Reform," *Journal of the American College of Radiology*, 13(10): 1171-1175
- [53] A. Prabhakar, A. Misono, J. Hemingway, **D.R. Hughes**, R. Duszak. 2016. "Medicare Utilization of CT Angiography from 2001-2014: Continued Growth by Radiologists," *Journal of Vascular and Interventional Radiology*, 27(10): 1554-1560
- [54] M. Lu, T.R. Hallett, J. Hemingway, **D.R. Hughes**, U. Hoffman, R. Duszak. 2016. "Secondary Interpretation of Computed Tomography Examinations: Frequency and Payment in the Medicare Fee-for-Service Population," *Journal of the American College of Radiology*, 13(9): 1096-1101
- [55] C. Moreno, J. Hemingway, A. Johnson, **D.R. Hughes**, P. Mittal, R. Duszak. 2016. "Changing Abdominal Imaging Utilization Patterns: Perspectives from Medicare Beneficiaries over Two Decades," *Journal of the American College of Radiology*, 13(8): 894-903
- [56] K. Cox, R. Duszak, J. Hemingway, **D.R. Hughes**, S. Nandwana. 2016. "Reassessing Medicare Trends in Diagnostic CT Colonography after Achieving CPT Code Category I Status," *Abdominal Radiology*, 41(7): 1357-1362
- [57] M. Wintermark, H. Kroll, **D.R. Hughes**, R. Duszak. 2016. "Same Day Sinus and Brain CT Imaging in the Medicare Population: Are Practice Patterns Changing in Association with Medicare Policy Initiatives?" *American Journal of Neuroradiology*, 37(6): 1000-1004

- [58] \*G. Gan, P. Harkey, J. Hemingway, **D.R. Hughes**, R. Duszak. 2016. "Changing Utilization Patterns of Cervical Spine Imaging in the Emergency Department: Perspectives from Two Decades of National Medicare Claims," *Journal of the American College of Radiology*, 13(6): 644-648
- [59] A. Rosenkrantz, **D.R. Hughes**, R. Duszak. 2016. "The United States Radiology Workforce: An Analysis of Temporal and Geographic Variation Using Large National Datasets," *Radiology*, 279(1): 175-185
- [60] A. Prabhakar, A. Misono, J. Hemingway, **D.R. Hughes**, R. Duszak. 2016. "Medicare Utilization of Vascular Ultrasound from 1998-2003: Continued Growth in Both Radiologist and Nonradiologist Imaging," *Journal of the American College of Radiology*, 13(3): 255-264
- [61] A. Rosenkrantz, **D.R. Hughes**, R. Duszak. 2016. "How do Publicly Reported Medicare Quality Metrics for Radiologists Compare with Other Specialty Groups?" *Journal of the American College of Radiology*, 13(3): 243-248
- [62] J. Flug, J. Hemingway, **D.R. Hughes**, E. Silva III, R. Duszak. 2016. "Recent Medicare Policy Initiatives and the Relative Utilization of "Double Scan" Computed Tomography," *Journal of the American College of Radiology*, 13(2): 137-143
- [63] D. Deyo, J. Hemingway, **D.R. Hughes**. 2015. "Identifying Patients with Undiagnosed Chronic Conditions: A Comparison of Chronic vs. Non-chronic Disease Patient Costs Prior to a Chronic Disease Diagnosis," *Journal of the American College of Radiology*, 12(12PB): 1388-1394
- [64] A. Vijayasarathi, C.M. Hawkins, **D.R. Hughes**, M. Mullins, R. Duszak. 2015. "How Much Do Common Imaging Studies Cost? A Nationwide Survey of Radiology Trainees," *American Journal of Roentgenology*, 205(5): 929-935
- [65] A. Rosenkrantz, **D.R. Hughes**, R. Duszak. 2015. "State Variation in Medical Imaging: Despite Great Variation, the Medicare Spending Decline Continues," *American Journal of Roentgenology*, 205(4): 817-821
- [66] K. Gilbert, C.M. Hawkins, **D.R. Hughes**, K. Patel, N. Gogia, A. Sekhar, R. Duszak. 2015. "Physician Rating Websites: Do Radiologists Have an Online Presence?" *Journal of the American College of Radiology*, 12(8): 867-871
- [67] F. Chokshi, **D.R. Hughes**, J.M. Wang, M. Mullins, M. Hawkins, R. Duszak. 2015. "Diagnostic Radiology Resident and Fellow Workloads: A 12 Year Longitudinal Trend Analysis Using National Medicare Aggregate Claims Data," *Journal of the American College of Radiology*, 12(7): 664-669
- [68] W. Angel, C.M. Hawkins, J.M. Wang, **D.R. Hughes**, R. Duszak. 2015. "Percutaneous Hepatic and Renal Biopsy Procedures: An 18 Year Analysis of Changing Utilization, Specialty Roles, and Sites of Service," *Journal of Vascular and Interventional Radiology*, 26(5): 680-685
- [69] G. Sadigh, T. Hertweck, C. Kao, P. Wood, **D.R. Hughes**, T. Henry, R. Duszak. 2015. "Traditional Text-Only vs. Multimedia Enhanced Radiology Reporting: Referring Physician's Perception of Value," *Journal of the American College of Radiology*, 12(5): 519-524
- [70] D. Rosman, E. Nsiah, **D.R. Hughes**, R. Duszak. 2015. "Regional Variation in Medicare Payments for Medical Imaging: Radiologists vs. Non-Radiologists," *American Journal of Roentgenology*, 204(5):1042-1048
- [71] R. Duszak, D.G. Walls, J.M. Wang, J. Hemingway, **D.R. Hughes**, W.C. Small, M. A. Bowen. 2015. "Expanding Roles of Nurse Practitioners and Physician Assistants as Providers of Non-Vascular Invasive Radiology Procedures to Medicare Beneficiaries," *Journal of the American College of Radiology*, 12(3): 284-289

- [72] H. Kroll, R. Duszak, E. Nsiah, **D.R. Hughes**, S. Sumer, M. Wintermark. 2015. "Trends in Lumbar Puncture over 2 Decades: a Dramatic Shift to Radiology," *American Journal of Roentgenology*, 204(1): 15-19
- [73] A. Khaliq, E. Nsiah, N. Bilal, **D.R. Hughes**, R. Duszak. 2014. "The Scope and Distribution of Imaging Services at Critical Access Hospitals," *Journal of the American College of Radiology*, 11(9):857-862
- [74] R. Duszak, E. Nsiah, **D.R. Hughes**, J. Maze. 2014. "Emergency Department Imaging: Uncompensated Services Rendered by Radiologists Nationwide," *Journal of the American College of Radiology*, 11(6): 559-565
- [75] D. Lee, R. Duszak, **D.R. Hughes**. 2013. "Comparative Analysis of Medicare Spending for Medical Imaging: Sustained Dramatic Slowdown Compared with Other Services," *American Journal of Roentgenology*, 201(6): 1277-1282
- [76] E. Bluth, H. Truong, E. Nsiah, **D.R. Hughes**, B. Short, 2013. "The 2013 ACR Commission on Human Resources Workforce Survey," *Journal of the American College of Radiology*, 10(10): 750-756
- [77] R. Duszak, N. Husain, D. Picus, **D.R. Hughes**, J. Xu, 2013. "Central Venous Access: Evolving Roles of Radiology and Other Specialties Nationally Over Two Decades," *Journal of the American College of Radiology*, 10(8): 603-612
- [78] M. Doodoo, R. Duszak, **D.R. Hughes**, 2013. "Trends in Utilization of Medical Imaging from 2003 to 2011: Clinical Encounters Offer a Complementary Patient-Centered Focus," *Journal of the American College of Radiology*, 10(7): 507-512
- [79] R. Duszak, B. Allen, **D.R. Hughes**, N. Husain, R.M. Barr, E. Silva III, W.D. Donovan, 2012. "Emergency Department Computed Tomography of the Abdomen and Pelvis: Preferential Utilization in Higher Complexity Patient Encounters," *Journal of the American College of Radiology*, 9(6): 409-413
- [80] M. Bhargavan, J. Sunshine, **D.R. Hughes**, 2011. "Clarifying the Relationship between Financial Self-interest and Imaging" *American Journal of Roentgenology*, 197(5): W891-899

#### INVITED LECTURES AND SEMINARS

- [1] Air Force Institute of Technology, Department of Systems and Engineering Management, Dayton, OH. December 1, 2009. "Evaluating Real Options for Source Selection in Multi-stage Competitions under Budget Uncertainty."
- [2] University of Oklahoma Health Sciences Center, Department of Health Administration and Policy, Oklahoma City, OK. June 17, 2010. "Does Self-Referral for Imaging Reduce Episode Duration and Non-Imaging Costs?"
- [3] The Ohio State University, John Glenn School of Public Affairs, Columbus, OH, January 10, 2012, "The Pure Effect of Macroeconomic Fluctuations on Medical Care Utilization."
- [4] Tulane University, Department of Global Health Systems and Development, New Orleans, LA, January 24, 2012, "The Pure Effect of Macroeconomic Fluctuations on Medical Care Utilization."
- [5] George Washington University, Department of Health Policy, Washington, DC, December 3, 2012, "The Effect of Macroeconomic Conditions on the Care Decisions of the Employed."
- [6] Thomas Jefferson University, Department of Radiology, Philadelphia, PA, December 19, 2012, "Repeat Medical Imaging: A Classification System for Meaningful Policy Analysis."

- [7] Emory University, Department of Radiology and Imaging Sciences, Atlanta, GA, May 2, 2013, “Radiology and Evolving Care Delivery and Payment Systems.”
- [8] George Washington University, School of Nursing, Washington, DC, August 27, 2014, “Comparison of Diagnostic Imaging Ordering Patterns between Advanced Practice Providers and Primary Care Physicians following Office-based Evaluation and Management Visits.”
- [9] University of Arkansas for Medical Sciences, Department of Health Policy and Management, Little Rock, AR, December 8, 2015, “Mitigating Small Provider Financial Risk under Prospective Bundled Payment Systems.”
- [10] The Ohio State University, College of Public Health, Division of Health Services Management and Policy, Columbus, OH, December 10, 2015, “Mitigating Small Provider Financial Risk under Prospective Bundled Payment Systems.”
- [11] George Mason University, Center for Micro-Economic Policy Research, Arlington, VA, March 22, 2016, “The Effect of Utilization Regulation: The Case of CT Scans and the Affordable Care Act.”
- [12] Yale University, Department of Radiology, New Haven, CT, August 11, 2016, “Resources for Performing Health Policy and Health Services Research in Radiology.”
- [13] University of Louisville, Department of Economics, Louisville, KY, February 3, 2017, “Public Reporting and Self-Regulation: Hospital Compare’s Effect on Brain and Sinus Computed Tomography Utilization.”
- [14] Georgia Institute of Technology, School of Economics, Atlanta, GA, February 17, 2017, “Public Reporting and Self-Regulation: Hospital Compare’s Effect on Brain and Sinus Computed Tomography Utilization.”
- [15] Virginia Commonwealth University, Department of Health Administration, Richmond, VA, December 12, 2017, “Public Reporting and Self-Regulation: Hospital Compare’s Effect on Brain and Sinus Computed Tomography Utilization.”
- [16] National Dong Hwa University, Department of Finance, Hualien, Taiwan, March 21, 2018, “Public Reporting and Self-Regulation: Hospital Compare’s Effect on Brain and Sinus Computed Tomography Utilization.”

#### **PRESENTATIONS AT PROFESSIONAL AND SCIENTIFIC MEETINGS**

(\* *Indicates presentations by coauthors*):

- [1] Military Operations Research Society, 72<sup>nd</sup> MORS Symposium, June 22-24, 2004, Monterey, CA, “Advantages, Disadvantages, and Uses of Generalized Activity Networks,” (with D. Lee and Y. Whitaker). (**Best paper award: Cost Analysis Track. Barchi Prize Nominee for best conference paper**)
- [2] Econometric Society, 59<sup>th</sup> European Meetings, August 19-24, 2004, Universidad Carlos III, Madrid, Spain, “A Better Technology Frontier: Estimating Aggregate Frontiers with Sector Data.”
- [3] Department of Defense Cost Analysis Symposium, 38<sup>th</sup> Annual Meetings, February 15-18, 2005, Williamsburg, VA, “Advantages, Disadvantages, and Uses of Generalized Activity Networks: Coriolis Case Study” (with Y. Whitaker, D. Lee, and J. Eckhouse)
- [4] \*INFORMS Annual Meeting 2006, November 5-8, 2006, Pittsburgh, PA, “Evaluating Real Options for Mitigating Risk in Government R&D Acquisitions,” (with J. Eckhouse)



- [5] Southern Economics Association, 76<sup>th</sup> Annual Meetings, November 18-21, 2006, Charleston, S.C., “Real Options for Public Sector R&D Investments,” (with J. Eckhause)
- [6] National Defense Industrial Association, 23<sup>rd</sup> Annual National Test and Evaluation Conference, March 12-15, 2007, Hilton Head Island, S.C., “Estimating Durations and Trials to Success in Test Programs,” (with J. Eckhause)
- [7] \*Military Operations Research Society, 75<sup>nd</sup> MORS Symposium, June 12-14, 2007, Annapolis, MD, “Mitigating Technical Risk in R&D Intensive Weapon System Acquisitions,” (with J. Eckhause)
- [8] \*INFORMS Annual Meeting 2007, November 4-7, 2007, Seattle, WA, “Evaluating Real Options for Source Selection in Multi-stage Competitions under Budget Uncertainty,” (with J. Eckhause)
- [9] \*Southern Economics Association, 77<sup>th</sup> Annual Meetings, November 19-21, 2007, New Orleans, LA, “One Nation under Fed? An Examination of the Asymmetric Effects of Monetary Shocks,” (with D. Beckworth)
- [10] Southern Economics Association, 77<sup>th</sup> Annual Meetings, November 19-21, 2007, New Orleans, LA, “Trade and Aggregate Efficiency: A Stochastic Frontier Approach.”
- [11] Econometric Society, 63<sup>rd</sup> European Meetings, August 27-31, 2008, Milan, Italy, “Innovation, Firm Efficiency, and Market Structure”
- [12] \*INFORMS Annual Meeting 2008, October 12-15, 2008, Washington, D.C., “Employing an IP Formulation for Evaluating Real Options for Source Selection in Multi-stage Competitions,” (with J. Eckhause and S. A. Gabriel)
- [13] Southern Economics Association, 78<sup>th</sup> Annual Meetings, November 20-23, 2008, Washington, D.C., “Clergy Labor Supply: Evidence from Seminary Enrollment,” (with D. T. Mitchell and D. Molinari)
- [14] Southern Economics Association, 78<sup>th</sup> Annual Meetings, November 20-23, 2008, Washington, D.C., “Frontiers of Rentseeking in the U.S. States,” (with D. T. Mitchell and N. Campbell)
- [15] Association of American Medical Colleges, 5<sup>th</sup> Annual Physician Workforce Research Conference, April 30-May1, 2009, Washington, D.C., “The Productivity and Efficiency of Radiology Practices,” (with J. Sunshine, C. Meghea, and M. Bhargavan)
- [16] AcademyHealth, Annual Research Meeting, June 28-30, 2009, Chicago, IL, “The Relationship of Financial Self-Interest in Imaging to Economic and Medical Outcomes,” (with M. Bhargavan and J. Sunshine)
- [17] \*International Health Economics Association, 7<sup>th</sup> World Congress, July 12-15, 2009, Beijing, China, “The Productivity and Efficiency of Procedural Physician Practices: Radiology as a Case Study,” (with J. Sunshine, C. Meghea, and M. Bhargavan)
- [18] International Health Economics Association, 7<sup>th</sup> World Congress, July 12-15, 2009, Beijing, China, “The Relationship of Financial Self-Interest in Imaging to Economic and Medical Outcomes,” (with M. Bhargavan and J. Sunshine)
- [19] \*American Public Health Association, 137<sup>th</sup> Annual Meeting, November 7-11, 2009, Philadelphia, PA, “Determinants of the Productivity and Efficiency of Proceduralist Physician Practices: Radiology as a Case Study,” (with J. Sunshine, C. Meghea, and M. Bhargavan)
- [20] Southern Economics Association, 79<sup>th</sup> Annual Meetings, November 21-23, 2009, San Antonio, TX, “The Relationship of Financial Self-Interest in Imaging to Economic and Medical Outcomes” (with M. Bhargavan and J. Sunshine)

- [21] American Society of Health Economists, 3<sup>rd</sup> Biennial Conference, June 20-23, 2010, Ithaca, NY, “The Relationship of Self-Referral for Imaging to Cost Outcomes for Patients with Chronic Conditions” (with M. Bhargavan and J. Sunshine)
- [22] American Society of Health Economists, 3<sup>rd</sup> Biennial Conference, June 20-23, 2010, Ithaca, NY, “Does financial self-interest in imaging genuinely give rise to increased utilization?” (with M. Bhargavan and J. Sunshine)
- [23] Southern Economics Association, 80<sup>th</sup> Annual Meetings, November 20-22, 2010, Atlanta, GA, “Medical Utilization and the Business Cycle”
- [24] \*Military Operations Research Society, 79<sup>th</sup> MORS Symposium, June 20-23, 2011, Monterey, CA, “Could Overreliance on Parametrics Build Cost Overruns into the Equation?” (with D. Molinari)
- [25] \*International Health Economics Association, 8<sup>th</sup> World Congress, July 10-13, 2011, Toronto, Canada, “What is the Effect of Physician Payment Reductions – Specifically, the Large Reductions in Imaging Payments Due to the Deficit Reduction Act – on the Volume of Services?” (with J. Sunshine)
- [26] International Health Economics Association, 8<sup>th</sup> World Congress, July 10-13, 2011, Toronto, Canada, “The Pure Effect of Macroeconomic Fluctuations on Medical Care Utilization,”
- [27] American Public Health Association, 139<sup>th</sup> Annual Meeting, October 29-November 2, 2011, Washington, DC, “The Pure Effect of Macroeconomic Fluctuations on Medical Care Utilization,”
- [28] \*INFORMS Annual Meeting 2011, November 13-16, 2011, Charlotte, NC, “An IP Approach for Evaluating Energy R&D Funding Decisions with Optimal Budget Allocations,” (with J. Eckhause and S. Gabriel)
- [29] Southern Economics Association, 81<sup>st</sup> Annual Meetings, November 19-21, 2011, Washington, DC, “Are Acute or Chronic Patients Physician Profit Centers?”
- [30] \*American Roentgen Ray Society, 113<sup>th</sup> Annual Meetings, April 14-19, 2013, Washington, DC, “The Relation between Imaging Services and Medical Outcomes in Medicare,” (with M. Dodoo)
- [31] INFORMS Annual Meeting 2013, October 6-9, 2013, Minneapolis, MN, “Pricing Medical Practice Services to Minimize Revenue Risk under Bundled Payment Models,” (with J. Eckhause)
- [32] \*Radiological Society of North America, 99<sup>th</sup> Scientific Assembly and Annual Meeting, December 1-6, 2013, Chicago, IL, “The State of Screening Mammography from 2004 to 2011: Screening Rates are Down Nationwide as USPSTF Guidelines are Ignored,” (with M. Dodoo, R. Duszak, and G.B. McGinty)
- [33] \*Radiological Society of North America, 99<sup>th</sup> Scientific Assembly and Annual Meeting, December 1-6, 2013, Chicago, IL, “Central Venous Access: Evolving Roles of Radiology and Other Specialties Nationally Over Two Decades,” (with R. Duszak, N. Bilal, D. Picus, B. Xu)
- [34] \*Radiological Society of North America, 99<sup>th</sup> Scientific Assembly and Annual Meeting, December 1-6, 2013, Chicago, IL, “Preparing Radiology for Future Bundled Inpatient Hospital Service Payments: A National Analysis of Medicare Part Spending on Medical Imaging,” (with D.A. Rosman, N. Bilal, and R. Duszak)
- [35] \*Radiological Society of North America, 99<sup>th</sup> Scientific Assembly and Annual Meeting, December 1-6, 2013, Chicago, IL, “Who is Medicare Paying for Medical Imaging: An Analysis of Great Regional Variation in Payments to Radiologists vs. Non-Radiologists,” (with D.A. Rosman, E. Nsiah, and R. Duszak)

- [36] \*Radiological Society of North America, 99<sup>th</sup> Scientific Assembly and Annual Meeting, December 1-6, 2013, Chicago, IL, “Medicare Spending on Medical Imaging Varies Greatly Between States,” (with D.A. Rosman, E. Nsiah, and R. Duszak)
- [37] Radiological Society of North America, 99<sup>th</sup> Scientific Assembly and Annual Meeting, December 1-6, 2013, Chicago, IL, Panel Member: “Health Policy Initiatives in Medical Imaging: Promoting Value and Relevancy in Evolving Healthcare Delivery and Payment Systems.”
- [38] Association of University Radiologists, 62<sup>nd</sup> Annual Meeting, April 1-4, 2014, Baltimore, MD, “Health Services Research and Radiology.”
- [39] Association of American Medical Colleges, 10<sup>th</sup> Annual Physician Workforce Research Conference, May 1-2, 2014, Washington, DC, “Comparison of Diagnostic Imaging Ordering Patterns between Mid-level Practitioners and Primary Care Physicians for Office-based Evaluation and Management Visits,” (with M. Jiang and R. Duszak)
- [40] Society for Pediatric Radiology, 57<sup>th</sup> Annual Meeting, May 14-17, 2014, Washington, DC, “Payment for Value: Radiology in a post-ACA World.”
- [41] International Health Economics Association, 10<sup>th</sup> World Congress, July 13-16, 2014, Dublin, Ireland, “Comparison of Diagnostic Imaging Ordering Patterns between Advanced Practice Providers and Primary Care Physicians for Office-based Evaluation and Management Visits,” (with M. Jiang and R. Duszak)
- [42] \*International Health Economics Association, 10<sup>th</sup> World Congress, July 13-16, 2014, Dublin, Ireland, “Screening Mammography Rate Before and After the 2009 USPSTF Guideline: An Interrupted Time Series Analysis,” (with M. Jiang and R. Duszak)
- [43] INFORMS Annual Meeting 2014, November 9-12, 2014, San Francisco, CA, “Mitigating Specialty Provider Financial Risk in Prospective Bundled Payment Systems,” (with N. Bilal)
- [44] \*INFORMS Annual Meeting 2014, November 9-12, 2014, San Francisco, CA, “How Reimbursements and Incentives Affect Decisions in Radiology and Accountable Care Organizations,” (with H. Zhang, A. Slonim, and C. Wernz)
- [45] American Public Health Association, 142<sup>nd</sup> Annual Meeting, November 15-19, 2014, New Orleans, LA, “Screening Mammography Rate Before and After the 2009 USPSTF Guideline: An Interrupted Time Series Analysis,” (with M. Jiang and R. Duszak)
- [46] Southern Economics Association, 84<sup>th</sup> Annual Meeting, November 22-24, 2014, Atlanta, GA, “Health Outcomes and State Regulation: An Empirical Approach,” (with M. Mitchell)
- [47] \*Radiological Society of North America, 100<sup>th</sup> Scientific Assembly and Annual Meeting, November 30-December 1-5, 2014, Chicago, IL, “Trends in Non-Vascular Interventional Radiology Procedures Performed by Advanced Practice Providers: An Analysis of Annual Medicare Claims over Two Decades.” (with D.G. Walls, M. Bowen, J. Hemingway, J. Wang, R. Duszak)
- [48] \*Radiological Society of North America, 100<sup>th</sup> Scientific Assembly and Annual Meeting, November 30-December 1-5, 2014, Chicago, IL, “Bundled Inpatient Radiologist Imaging Professional Services: An Empiric Episode Frequency Focused Approach to Bundled Payment Modeling.” (with R. Duszak, N. Bilal, D. Rosman)
- [49] \*Association of University Radiologists, 63<sup>rd</sup> Annual Meeting, April 14-17, 2015, New Orleans, LA, “National Specialty Trends in Breast Imaging in Medicare Beneficiaries over 2 Decades.” (with G. Sadigh, J. Hemingway, M.S. Newell, R. Duszak)

- [50] American College of Radiology 2015 Meetings, May 14-19, 2015, Washington, DC, "Leveraging Data for Alternative Payment Model Development."
- [51] INFORMS Annual Meeting 2015, November 1-4, 2015, Philadelphia, PA, "Mitigating Small Provider Financial Risk Under Prospective Bundled Payment Systems," (with J. Eckhause)
- [52] \*INFORMS Annual Meeting 2015, November 1-4, 2015, Philadelphia, PA, "Increasing Healthcare Value in Accountable Care Organizations through Incentive Redesign," (with C. Wernz, H. Zhang, B. Barrios)
- [53] Radiological Society of North America, 101<sup>st</sup> Scientific Assembly and Annual Meeting, November 30-December 1-5, 2015, Chicago, IL, "The Future of Radiology Payments: Can Analytics Help Radiologists Regain Control?"
- [54] \*Society of Abdominal Imaging, 2016 Annual Meeting, March 13-18, 2016, Waikoloa, HI, "Abdominal Imaging Trends in Medicare Beneficiaries: A 20-year Perspective." (with C. Moreno, J. Hemingway, A. Johnson, P. Mittal, R. Duszak)
- [55] \*Society of Skeletal Radiology, 39<sup>th</sup> Annual Meeting, March 13-16, 2016, New Orleans, LA, "Changing Use of Cervical Spine Imaging in the Emergency Department Setting: Perspectives from Two Decades of National Medicare Claims." (with P. Harkey, G. Gan, J. Hemingway, R. Duszak)
- [56] Association of University Radiologists, 64<sup>th</sup> Annual Meeting, March 29-April 1, 2016, San Diego, CA, "Can You Do Health Disparities Research with Publicly Available Data Sets?"
- [57] \*Association of University Radiologists, 64<sup>th</sup> Annual Meeting, March 29-April 1, 2016, San Diego, CA, "Industry Payments to Radiologists: Do They Impact Regional Utilization of Medical Imaging?" (with N. Kokabi, M. Xing, R. Duszak)
- [58] \*American Roentgen Ray Society, 116<sup>th</sup> Annual Meetings, April 17-22, 2016, Los Angeles, CA, "Abdominal Imaging: Changing 20 Year Utilization," (with C. Moreno, J. Hemingway, A. Johnson, P. Mittal, R. Duszak)
- [59] American College of Radiology 2016 Meetings, May 15-19, 2016, Washington, DC, "The Crossroads of Quality, Data, and Informatics in Radiology Practice and Payment Models,"
- [60] American Society of Health Economists, 6<sup>th</sup> Biennial Conference, June 12-15, 2016, Philadelphia, PA, "The Effect of Utilization Regulation: The Case of CT Scans and the Affordable Care Act," (with D. Deyo)
- [61] \*American Public Health Association, 144<sup>th</sup> Annual Meeting, Oct 29-Nov 2, 2016, Denver, CO, "Effect of Medicare's Annual Wellness Visit on Preventive Care,"(with M. Jiang, W. Wang)  
*(Nominated for Erickson Foundation Award for Excellence in Research on Positive Aging)*
- [62] INFORMS Annual Meeting 2016, Nov 13-16, 2016, Nashville, TN, "Optimal Care Pathways for Lower Back Pain Patients," (with J. Eckhause, K. Best)
- [63] Southern Economics Association, 86<sup>th</sup> Annual Meeting, November 19-21, 2016, Washington, DC, "The Effect of Utilization Regulation: The Case of CT Scans and the Affordable Care Act," (with D. Deyo)
- [64] ACR-RBMA Practice Leaders Forum, January 13-15, 2017, Orlando, FL, "Bundled Payment Survival Tools."

- [65] \*Society of Interventional Radiology 2017 Annual Scientific Meeting, March 4-9, 2017 Washington, DC, "Weekday vs. Weekends: Are Radiologists Disproportionately Placing Off-Hours Inferior Vena Cava Filters?" (with M. Whitmore, M. Hawkins, W. Wang, M. Miller, R. Duszak)
- [66] \*American Roentgen Ray Society, 117<sup>th</sup> Annual Meetings, April 30-May 5, 2017, New Orleans, Louisiana, "Temporal and Site Differences Between Radiologist and Non-Radiologist Interpretation of Neuroimaging," (with N. Lall, W. Wang, R. Duszak)
- [67] \*American College of Radiology 2017 Annual Meeting, May 21-25, 2017, Washington, DC, "Radiologists serve more CMS beneficiaries each year than any other medical specialty," (with K. Hoque, J. Hemingway, R. Duszak)
- [68] American College of Radiology 2017 Annual Meeting, May 21-25, 2017, Washington, DC, "Alternative Payment Modeling in Radiology: The Screening Mammography Bundle."
- [69] American College of Radiology 2017 Annual Meeting, May 21-25, 2017, Washington, DC, "Understanding Costs in Radiology and Healthcare: Society's Perspective."
- [70] International Health Economics Association, 12<sup>th</sup> World Congress, July 7-11, 2017, Boston, MA, "Public Reporting and Self-Regulation: Hospital Compare's Effect on Brain and Sinus Computed Tomography Utilization," (with D. Deyo)
- [71] \*International Health Economics Association, 12<sup>th</sup> World Congress, July 7-11, 2017, Boston, MA, "The Effect of Sharing EMR Diagnostic Data on Mortality and Readmissions," (with D. Deyo, D. Mitchell, A. Khaliq)
- [72] \*International Health Economics Association, 12<sup>th</sup> World Congress, July 7-11, 2017, Boston, MA, "The Effect of Medicare's Annual Wellness Visit on Preventive Care," (with M. Jiang, W. Wang)
- [73] \*Radiology Society of North America, 103<sup>rd</sup> Scientific Assembly and Annual Meeting, November 26-December 1, 2017, Chicago, IL, "Downstream Imaging Utilization Following Emergency Department Ultrasound Interpreted by Radiologists versus Non-Radiologists in Medicare Patients," (with V. Carroll, B. Allen, J. Hemingway, R. Duszak)
- [74] \*Radiology Society of North America, 103<sup>rd</sup> Scientific Assembly and Annual Meeting, November 26-December 1, 2017, Chicago, IL, "Association of Breast Cancer Screening Utilization and Results with Uptake of Subsequent Preventive Services," (with L. Moy, S. Kang, R. Duszak, M. Jiang, S. Heller)
- [75] California Radiological Society, CRS and LARS Joint Mid-Winter Meeting, January 20-21, 2018, Pasadena, CA, Plenary Talk, "How Research on Health Policy Translates to Change in Policy."
- [76] California Radiological Society, CRS and LARS Joint Mid-Winter Meeting, January 20-21, 2018, Pasadena, CA, "What is the Neiman Policy Institute and How can its Tools be used to Understand Radiology Utilization and Payment."
- [77] South Coast Radiology Society, February 27<sup>th</sup>, 2018, Santa Barbara, CA, "Where Do Radiologists Fit in the Shift from Volume to Value?"
- [78] \*Society of Skeletal Radiology, 41<sup>st</sup> Annual Meeting, March 25-28, 2018, Austin, Texas, "Medicare Claims Characterization of SSR Membership Clinical Practice Patterns," (with D. Wessell, A. Rosenkrantz, W. Wang, R. Duszak)
- [79] \*Production and Operations Management Society, POMS 29<sup>th</sup> Annual Conference, May 4-7, 2018, Houston, TX, "Predicting Patient Risk of Alzheimer's Disease through Patterns of Previous Medical Care Utilization," (with S. Gohmann, J. Guan, S. Goyal)

- [80] \*International Investigative Dermatology, IID 2018, May 16-19, 2018, Orlando, FL, “Utilization and cost of actinic keratosis destruction in Medicare Part B fee-for-service beneficiaries in 1998-2016,” (with H. Yeung, M. Baranowski, R. Swerlick, S.C. Chen, J. Hemingway, R. Duszak)
- [81] \*American College of Radiology 2018 Annual Meeting, May 19-23, 2018, Washington, DC, “Day of Week, Site of Service, and Patient Complexity Disparities in Musculoskeletal MRI Interpretations by Radiologists vs. Non-Radiologists,” (with P. Harkey, N. Lall, P. Sharp, W. Wang, R. Duszak)
- [82] \*American College of Radiology 2018 Annual Meeting, May 19-23, 2018, Washington, DC, “Unique Medicare Beneficiaries Served by Radiologists: Which of Us “Touch” the Most Patients?” (with K. Hoque, A. Rosenkrantz, J. Hemingway, R. Duszak)
- [83] \*American College of Radiology 2018 Annual Meeting, May 19-23, 2018, Washington, DC, “Unique Digital Breast Tomosynthesis: Considerations for Emerging Breast Cancer Screening Bundled Payment Models,” (with M. Fleming, D. MacFarlane, G. McGinty, R. Duszak)
- [84] \*American College of Radiology 2018 Annual Meeting, May 19-23, 2018, Washington, DC, “State Level Variation in IVC Filter Utilization in the Medicare Population from 2005-2015: National Trends Do Not Tell the Whole Story,” (with D. Kishore, J. Hemingway, A. Rosenkrantz, M. Horny, R. Duszak)
- [85] \*American College of Radiology 2018 Annual Meeting, May 19-23, 2018, Washington, DC, “Declining Utilization of IVC Filters: State Level Commercial Claims Perspectives from 2009-2015,” (with D. Kishore, M. Horny, A. Rosenkrantz, R. Duszak)
- [86] \*Duke University Philosophy, Politics, and Economics Program Seminar, June 1, 2018, Park City, Utah, “Just What The Doctor Ordered: Tort Reforms and Hospital Imaging Utilization,” (with D. Deyo, D. Mitchell)
- [87] American Society of Neuroradiology, 56<sup>th</sup> Annual Meeting, June 2-7, 2018, Vancouver, Canada, “The Use and Usefulness of Emergency Neuroimaging.”
- [88] American Society of Neuroradiology, 56<sup>th</sup> Annual Meeting, June 2-7, 2018, Vancouver, Canada, “Deciphering the Current Healthcare Landscape: Hear from the Experts.”
- [89] American Society of Neuroradiology, 56<sup>th</sup> Annual Meeting, June 2-7, 2018, Vancouver, Canada, “Resources for Radiologists Participating in an Alternative Payment Model.”
- [90] \*American Society of Health Economists, 7<sup>th</sup> Annual Conference, June 10-13, 2018, Atlanta, GA, “Just What The Doctor Ordered: Tort Reforms and Hospital Imaging Utilization,” (with D. Deyo, D. Mitchell)
- [91] \*Western Economics Association, 93<sup>rd</sup> Annual Conference, June 26-30, 2018, Vancouver, Canada, “Just What The Doctor Ordered: Tort Reforms and Hospital Imaging Utilization,” (with D. Deyo, D. Mitchell)
- [92] \*Southern Economics Association, 88<sup>th</sup> Annual Meetings, November 18-30, 2018, Washington, DC, “Just What The Doctor Ordered: Tort Reforms and Hospital Imaging Utilization,” (with D. Deyo, D. Mitchell) *scheduled*

## **POSTERS AT PROFESSIONAL AND SCIENTIFIC MEETINGS**

- [1] American Society of Health Economists, 3<sup>rd</sup> Biennial Conference, June 20-23, 2010, Ithaca, NY, “The Relationship between the Business Cycle & Medical Care Utilization.”

- [2] AcademyHealth, Annual Research Meeting, June 27-29, 2010, Boston, MA, "The Relationship of Self-Referral for Imaging to Cost Outcomes for Patients with Chronic Conditions," (with M. Bhargavan and J. Sunshine)
- [3] AcademyHealth, Annual Research Meeting, June 27-29, 2010, Boston, MA, "Does Financial Self-Interest in Imaging Genuinely Give Rise to Increased Utilization?" (with M. Bhargavan and J. Sunshine)
- [4] AcademyHealth, Annual Research Meeting, June 27-29, 2010, Boston, MA, "The Relationship between Radiology Utilization and Medical Care Utilization over the Business Cycle."
- [5] American Public Health Association, 138<sup>th</sup> Annual Meeting, November 6-10, 2010, Denver, CO, "Does Financial Self-Interest in Imaging Genuinely Give Rise to Increased Costs?" (with M. Bhargavan and J. Sunshine)
- [6] AcademyHealth, Annual Research Meeting, June 23-25, 2013, Baltimore, MD, "Latest USPSTF Updates in Screening Mammography Guidelines have had Minimal Impacts on Practice," (with M. Doodoo and R. Duszak)
- [7] American College of Radiology Annual Meeting and Chapter Leadership Conference, April 26-30, 2014, Washington, DC, "Visible Radiologists: Providing Bedside Consultation," (with J. Wright, J. Walsh, L. Gimber, T. Elani, and E. Krupinski)
- [8] AcademyHealth, Annual Research Meeting, June 8-10, 2014, San Diego, CA, "The Scope and Distribution of Diagnostic and Therapeutic Imaging Services at Critical Access Hospitals in the U.S.," (with A. Khaliq, E. Nsiah, N. Bilal, and R. Duszak)
- [9] AcademyHealth, Annual Research Meeting, June 8-10, 2014, San Diego, CA, "Comparison of Diagnostic Imaging Ordering Patterns between Advanced Practice Providers and Primary Care Physicians for Office-based Evaluation and Management Visits," (with M. Jiang and R. Duszak)
- [10] AcademyHealth, Annual Research Meeting, June 8-10, 2014, San Diego, CA, "Using Claims Data to Assess County and State Level Access to Care," (with E. Nsiah)
- [11] AcademyHealth, Annual Research Meeting, June 8-10, 2014, San Diego, CA, "Screening Mammography Rate Before and After the 2009 USPSTF Guideline: An Interrupted Time Series Analysis," (with M. Jiang and R. Duszak)
- [12] Radiological Society of North America, 100<sup>th</sup> Scientific Assembly and Annual Meeting, November 30-December 1-5, 2014, Chicago, IL, "Liver and Kidney Biopsies: Changing Roles of Radiologists and Other Specialists from 1991 - 2012." (with W. Angel, C.M. Hawkins, J. Wang, and R. Duszak)
- [13] Radiological Society of North America, 100<sup>th</sup> Scientific Assembly and Annual Meeting, November 30-December 1-5, 2014, Chicago, IL, "Traditional Text vs. Image and Interactive Data Embedded Multimedia Enhanced Radiology Reporting: Referring Physicians' Perceptions about Value." (with G.Sadigh, T. Hertwick, C. Kao, P. Wood, and R. Duszak)
- [14] American College of Radiology 2015, May 14-19, 2015, Washington, DC, "Medicare Payment for Secondary Interpretation of Diagnostic Imaging: CT Trends from 1999 to 2012." (with M. Lu, J. Hemingway, T. Hallett, R. Duszak, U. Hoffmann). **Gold-Merit Award Winner**
- [15] American College of Radiology 2015, May 14-19, 2015, Washington, DC, "'Double Scans' of the Chest: Trends in Medicare Utilization By Specialty and Site of Service." (with J. Flug, J. Hemingway, and R. Duszak). **Gold-Merit Award Winner**

- [16] AcademyHealth Annual Research Meeting, June 14-16, 2015, Minneapolis, MN, “The Right Care By the Right Clinician: A Comparison of Diagnostic Imaging Ordering Patterns Between Nurse Practitioners and Primary Care Physicians.” (with M. Jiang and R. Duszak)
- [17] American Public Health Association, 143<sup>rd</sup> Annual Meeting, Oct 31-Nov 4, 2015, Chicago, IL, “The Right Care By the Right Clinician: A Comparison of Diagnostic Imaging Ordering Patterns Between Nurse Practitioners and Primary Care Physicians.” (with M. Jiang and R. Duszak)
- [18] American College of Radiology, 2016 Meetings, May 15-19, 2016, Washington, DC, “Changing Utilization of Brain Imaging in the Emergency Department: Perspectives from Nearly Two Decades of National Medicare Claims,” (with S. Patel, J. Hemingway, J. Rawson, R. Duszak) **Gold-Merit Award Winner**
- [19] American College of Radiology, 2016 Meetings, May 15-19, 2016, Washington, DC, “Changing Utilization Patterns of Cervical Spine Imaging in the Emergency Department Setting: Perspectives from Two Decades of National Medicare Claims,” (with G. Gan, P. Harkey, J. Hemingway, R. Duszak) **Gold-Merit Award Winner**
- [20] American Society of Health Economists, 6<sup>th</sup> Biennial Conference, June 12-15, 2016, Philadelphia, PA, “The Effect of Medicare's Annual Wellness Visit on Preventive Care,” (with M. Jiang and Wenyi Wang)
- [21] AcademyHealth, Annual Research Meeting, June 26-28, 2016, Boston, MA, “The Effect of Utilization Regulation: The Case of CT Scans and the Affordable Care Act,” (with D. Deyo)
- [22] American College of Radiology, 2017 Annual Meeting, May 21-25, 2017, Washington, DC, “Downstream Imaging Utilization Following Emergency Department Ultrasound Interpreted by Radiologists vs. Non-Radiologists: A Medicare Claims-Based Study,” (with B. Allen, V. Carroll, J. Hemingway, A. Rosenkrantz, R. Duszak) **Gold-Merit Award Winner**
- [23] Society of Abdominal Radiology, 2018 Annual Meeting, March 4-9, 2018, Scottsdale, AZ, “Increasing Utilization of Pre-Biopsy Prostate MRI: A National Medicare Perspective from 2011-2015,” (with A. Rosenkrantz, J. Hemingway, R. Duszak, J. Weinreb)
- [24] American Roentgen Ray Society, 118<sup>th</sup> Annual Meeting, April 22-27, 2018, Washington, DC, “Temporal and site differences in venous ultrasounds interpreted by radiologists and non-radiologists,” (R. Gottumukkala, R. Duszak, W. Wang, A. Prabhakar)
- [25] AcademyHealth, Annual Research Meeting, June 24-25, 2018, Seattle, WA, “Just What The Doctor Ordered: Tort Reforms and Hospital Imaging Utilization,” (with D. Deyo, D. Mitchell)

## **SPONSORED RESEARCH**

- [1] Hillsborough County Department of Economic Development  
2002  
*Economic Patterns in Hillsborough County in 1999: Hillsborough County Zip Code Business and Employment Patterns Analysis* (PI: Hughes, Danny)  
Amount Awarded: \$5,000                      Role: Principal Investigator
- [2] Los Alamos National Laboratory  
2003  
*Electric Power and Natural Gas Outage Study* (PI: Colie, Dennis)  
Amount Awarded: \$50,000                      Role: Co-investigator
- [3] Logistics Management Institute  
2006-2007



*Analytical Methods for Public Sector Acquisition Decisions* (PI: Hughes, Danny)  
Amount Awarded: \$90,000                      Role: Principal Investigator

- [4] American College of Radiology  
2011  
*Economics of Diagnostic Imaging* (PI: Hughes, Danny)  
Amount Awarded: \$65,000                      Role: Principal Investigator
- [5] Oklahoma Health Information Exchange Trust  
2011-2012  
*Gap Analysis* (PI: Hughes, Danny)  
Amount Awarded: \$195,039                      Role: Principal Investigator
- [6] Centers for Medicare and Medicaid Services (HHSM-500-2011-00015I/HHSM-500-T0004)  
2011-2016  
*Post-Reform Consumer Landscape Market Analytics and Implementation* (PI: Moser, Jim)  
Amount Awarded: \$15,600,000                      Role: Co-investigator
- [7] National Institute of Arthritis and Musculoskeletal and Skin Diseases (1P30AR072572-01)  
2017-2022  
*UW Core Center for Clinical Research (CCCR) of Musculoskeletal Conditions* (PI: Jarvik, Jeffrey)  
Amount Awarded: \$3,750,000                      Role: Co-investigator
- [8] American College of Radiology  
2018  
*The Effect of Emerging Health Care Delivery and Payment Models on the Provision of Medical Imaging Services* (PI: Danny Hughes)  
Amount Awarded: \$74,885                      Role: Principal Investigator
- [9] American College of Radiology (Cost Reimbursement Agreement #138861)  
2018-2023  
*Health Economics and Analysis Lab* (PI: Danny Hughes)  
Amount Awarded: \$3,310,178                      Role: Principal Investigator

#### **TECHNICAL PAPERS AND RESEARCH REPORTS**

- [1] "Economic Patterns in Hillsborough County in 1999: Hillsborough County Zip Code Business and Employment Patterns Analysis," *Center for Economic Development Research Report*, University of South Florida, Sep 2002
- [2] "Land Use in Hardee County," *Center for Economic Development Research Report*, University of South Florida, Feb 2003
- [3] "Electric Power and Natural Gas Outage Study," with D. Colie, *Center for Economic Development Research Report*, University of South Florida, Mar 2003
- [4] "Integrated Performance Cost Model: Conceptual Approach," with G. Belcher, D. Lee, J. Villani, K. Willstatter, A. Valentine, and G. B. Chadwell, *Logistics Management Institute #AR314T1*, Sep 2003
- [5] "Test and Evaluation Cost Estimating Handbook: Work Breakdown Structures and Data Dictionaries," with K. Cincotta, I. Cook, R. Hemm, Y. Whitaker, *Logistics Management Institute #AR329T1*, Sep 2004
- [6] "An Approach to Developing an Enterprise Simulator for NASA's Aeronautics Research Mission Directorate," with J. Gribko, G. Pickney, V. Stouffer, *Logistics Management Institute #NS359T1*, Sep 2004

- [7] “High-Level Model for Forecasting DOD Depot Maintenance Funding Requirements,” with G. Belcher, R. Steans, V. Stouffer, *Logistics Management Institute #PA505TI*, Dec 2005
- [8] “Beyond Fee-For-Service: Emerging Payment Models in Radiology,” with R. Duszak, *The Neiman Report*, No. 3, June 2013

## **SERVICE ACTIVITIES**

### **Editorial Service**

Editorial Board, *Journal of the American College of Radiology* (2015 – present)  
 Guest Co-editor, special issue of *Journal of the American College of Radiology*, 2015

### **Peer Reviewer for:**

*Annals of Internal Medicine, American Journal of Managed Care, American Journal of Public Health, American Journal of Roentgenology, Computational Statistics and Data Analysis, Economic Inquiry, Environmental Protection Agency, EURO Journal on Decision Processes, Health Affairs, Health Services Research, IEEE Transactions on Engineering Management, IIE Transactions on Healthcare Systems Engineering, International Journal of Project Management, JAMA Internal Medicine, Journal of the American College of Radiology, Journal of the National Comprehensive Cancer Network, Journal of Rural Health, Medical Care, Natural Resource Modeling, Public Finance Review, Southern Journal of Entrepreneurship, Women’s Health Issues*

### **National Panel Member:**

CDC Expert Panel on Lung Cancer Screening Surveillance (2013)  
 NIH/RSNA/ACR Expert Panel on Gadolinium Deposition: What We Know and Don’t Know, A Research Roadmap (2018)

### **Scientific Committee Member:**

American Public Health Association Annual Meeting (2009; 2015; 2016)  
 American Society of Health Economists (2016; 2018)  
 International Health Economics Association World Congress (2011; 2014; 2015; 2017)

### **Conference Session Chair:**

American Economic Association Annual Meeting (2012)  
 Association of University Radiologists (2014)  
 INFORMS (2015)  
 International Health Economics Association World Congress (2009; 2014; 2015)  
 Southern Economics Association Annual Meeting (2009)

### **University Service:**

#### **University of Oklahoma**

<i>University Service:</i>	IT Advisory Committee (2011 – 2012)
<i>College Service:</i>	Academic Appeals Board (2012 – 2012)
	Bylaws Committee (2011 – 2012)
	Professional Practice Plan Committee (2011 – 2012)
<i>Department Service:</i>	Faculty Search Committee (2011 – 2012)

#### **University of South Alabama**

<i>College Service:</i>	Faculty Development Committee (2004 – 2008)
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### **External Advisory Boards:**

George Mason University, Health Informatics Program Advisory Board (2016 – Present)

### **Community Service:**

Greater Tampa Chamber of Commerce, Subcommittee for Foreign Direct Investment (2002 – 2003)  
 Downtown Mobile Alliance, Retail Development Committee (2007 – 2008)

Mississippi Department of Archives and History, Statistical Consultant *pro bono* (2011 – 2012)

#### **PH.D. DISSERTATION COMMITTEE SERVICE**

##### ***University of Maryland***

Committee Member: Sirapong Vilalai, *Civil and Environmental Engineering* (2008)  
Jeremy Eckhause, *Civil and Environmental Engineering* (2011)

#### **MPH PRACTICUM COMMITTEE SERVICE**

##### ***University of Oklahoma***

Chair: Iman Haynes, *MPH Health Policy* (2012)  
Thanh Nguyen, *MPH Health Policy* (2012)

Committee Member: Sandra Carter, *MPH Biostatistics* (2011)

#### **TEACHING EXPERIENCE**

**Professor/Visiting Professor**, Georgia Institute of Technology,  
School of Economics, 08/2017 – Present

Graduate Courses (MS):  
Health Economics  
Cost Benefit Analysis  
Introduction to Probability and Statistics

**Assistant Professor**, University of Oklahoma,  
Department of Health Administration and Policy, 01/2011 – 08/2012

Graduate Courses (MHA & MPH):  
Operations Research  
Health System Financial Management

**Assistant Professor**, University of South Alabama,  
Department of Economics & Finance, 08/2004 – 08/2008

Undergraduate Courses:  
Introduction to Economics (non-majors)  
Principles of Microeconomics  
Principles of Macroeconomics  
Industrial Organization  
International Trade  
Introduction to Econometrics  
Graduate Courses (MBA):  
Economic Theory

**Instructor**, University of Georgia,  
Department of Economics, 05/1999 – 12/2002

Undergraduate Courses:  
Principles of Macroeconomics  
Economics of Environmental Quality  
Economics of Human Resources