

Meredith A. Ray
Associate Professor of Biostatistics

University Address

University of Memphis
Robison Hall 220
Division of Epidemiology, Biostatistics, and Environmental Health
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Memphis, TN 38152
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Research Interest

Bayesian methods, semi-parametric modeling, fMRI brain imaging data analysis, bioinformatics, syndemics analysis, and lung cancer

Education

2010-2014	Doctorate of Philosophy in Biostatistics, Arnold School of Public Health, University of South Carolina, Columbia, SC
2007-2009	Master of Public Health in Biostatistics, College of Public Health, University of Georgia, Athens, GA
2004-2007	Bachelor of Science in Mathematics, Piedmont College, Demorest, GA

Professional Experience

2020-present	Associate Professor in Biostatistics, University of Memphis, Memphis, TN
2015-2020	Assistant Professor in Biostatistics, University of Memphis, Memphis, TN
2014-present	Statistical Consultant
2013-2015	Research Assistant, University of Memphis, Memphis, TN
2010-2013	Research Assistant, University of South Carolina, Columbia, SC
2013	Student Consultant, University of South Carolina, Columbia, SC
2007-2010	Research Assistant, University of Georgia, Athens, GA
2009	Assistant Consultant, Ted Simon LLC, Independent Consultant, Atlanta, GA

Research Support

Grants funded:

2R01CA172253-06	(PI: Raymond Osarogiagbon)	08/2018-06/2023
Title: Improving N1 lymph node examination in a high US lung cancer mortality region		
Source: NCI/NIH		
Amount: \$499,347		

Role and % effort: Co-investigator (10%CY)

CoRS 2021	(PI: Meredith Ray)	11/2021-5/2022
Title: Developing a multidimensional and data-driven understanding of sexual positioning identity among cisgender men who have sex with men		
Source: University of Memphis		

Amount: \$2,500

Role and % effort: Principal Investigator (0%)

NU58DD000019-02-01 (CARES Suppl.) (PI: Matthew Smeltzer) 09/2021-09/2022

Title: Tennessee Sickle Cell Disease Surveillance Program

Source: CDC/CARES Act

Amount: \$130,088

Role and % effort: Co-investigator (15% AY/20% SY)

Grants Completed:

CoRS 2020 (PI: Xichen Mou) 10/2019-06/2020

Title: Covid-19 Screening using pool testing in Memphis

Source: University of Memphis

Amount: \$2,500

Role and % effort: Co-investigator (0%)

American Heart Association (PI: Brandt Pence) 04/2018-03/2021

Title: Glycolytic Metabolism and Cellular function in Monocytes from Older Adults

Source: AHA

Amount: \$154,000

Role and % effort: Statistician (3%CY)

1R03AI128227-01A1 (PI: Meredith Ray) 01/2018-12/2019(2020 NCE)

Title: Joint Patterns of multi-genetic/epigenetic factors via non-parametric clustering and their association with allergic disease

Source: NIAID/NIH

Amount: \$69,617

Role and % effort: Principal Investigator (10%AY,12%SM)

CoRS 2019 (PI: Brook Harmon) 10/2019-06/2020

Title: Social Determinants of Health and Objective markers of Health Outcomes

Source: University of Memphis

Amount: \$2,500

Role and % effort: Co-investigator (0%)

R15AG058225 (PI: Gerhild Ullmann) 08/2018-07/2021

(terminated)

Title: Effects of mindful Feldenkrais exercises & strength training on cognitive executive function in independent living older adults

Source: NIA/NIH

Amount: \$430,451

Role and % effort: Co-investigator (4%AY, 12%SM)

Epidemiology, Biostatistics, and
Data Coordinating Center (PI: Matthew Smeltzer) 07/2017-04/2019

Title: Creating an Optimal Care Coordination Model for Lung Cancer Patients on Medicaid

Source: Association of Community Cancer Centers

Amount: \$320,000

Role and % effort: Co-Investigator (15%)

R01CA172253 (PI: Raymond Osarogiagbon) 04/2013-03/2018
Title: Dissemination of a Corrective Intervention to Improve Lymph Node Examination in Resected Lung Cancer
Source: NCI/NIH
Amount: \$2,864,321
Role and % effort: Co-Investigator (15%)

IH-1304-6147 (PI: Raymond Osarogiagbon) 02/2014 – 07/2017
Title: Building a Multidisciplinary Bridge Across the Quality Chasm in Thoracic Oncology.
Source: PCORI
Amount: \$2,103,889.20
Role and % effort: Co-Investigator, Biostatistician (5%)

Grants submitted:

LITE-2 (MPI: Christian Grov and Adam Carrico) August 2021
Title: Optimizing HIV prevention for highly vulnerable methamphetamine-using sexual minority men
Source: NIH
New Submission
Role and effort: Statistical Consultant

R21 (PI: Lynda Feenaughty) October 2021
Title: Multi-domain communication model in multiple sclerosis (MS)
Source: NIH (NIDCD)
New Submission
Role and effort: Co-investigator (3.75%)

Grants not funded:

CoRS 2021 (PI: Meredith Ray) 11/2021-5/2022
Title: Characterizing a pediatric cohort of right atrium (RA) lines and identifying risk factors for complications and removal.
Source: University of Memphis
Amount: \$2,500
Role and % effort: Principal Investigator (0%)

R25 (PI: Hongmei Zhang) March 2021
Title: BioStatistical analyses of Multi-source data in Allergic and Respiratory conditions (BioSMART) Summer Institute
Source: NIH (Summer Institute for Research Education in Biostatistics and Data Science)
Role and effort: Co-investigator (9.25%)

PCORI (MPI: Osarogiagbon and Shry) December 2020
Title: Strategies to Improve Lymphadenectomy in Lung Cancer Resection: a Comparative Effectiveness Trial (SILENCER)
Source: PCORI (subaward with Baptist as primary sponsor)
Role and effort: Biostatistician/co-investigator (11.25%)

PCORI (PI: Aram Dobalian) May 2020
Title: COVID-19 Healthcare Personnel Study - United States (CHPS-US)
Source: PCORI and NYU

New Submission

Role and effort: Co-investigator (15%)

R01 (PI: Angela Antipova) September 2020

Title: Macro-Micro COVID-19 study: the impact of a multi-dimensional social disadvantage and COVID-19 testing policies in Institutions of Higher Education (IHEs) on coronavirus disease 2019 morbidity and mortality in local communities.

Source: NIH

Role and effort: Co-investigator (29.75%)

Baptist Healthcare Foundation (PI: Matthew Smeltzer) August 2019

Title: Multidisciplinary Care in Lung Cancer: Evaluating Current Practice and Processes for Implementation Across a Regional Healthcare System

Role and effort: Co-Investigator (15%)

Status: Pending (favorable preliminary review)

R21 (PI: Fawaz Mzayek) February 2019

Title: Exploration of a Systems Medicine Approach in Epidemiological Research: A Study of Determinants of Cardiovascular Disease

Source: NIH

New Submission

Role and effort: Co-Investigator (15%)

USDA (PI: Debra Bartelli) January 2019

Title: Understanding Senior Food Insecurity and What Works to Address It

Source: USDA – University of Kentucky

New Submission

Role and effort: Co-Investigator (5%)

R21CA242959 (PI: Meredith Ray) October 2018

Title: A semi-parametric approach to clustering binary variables in association with clinical outcomes in lung cancer patients

Source: NCI/NIH

Resubmission (First submission October 2017)

Role and effort: Principal Investigator (10%)

Research Scholar Grant (PI: Brook Harmon) October 2018

Title: Adaptive Intervention to Decrease Inflammation in Cancer Survivors

Source: ACS

Resubmission (Initial submission March 2017, score: Excellent; Resubmission October 2017, score: "Outstanding")

Score: Outstanding

Role and effort: Co-Investigator/Statistician (5%)

R01 (PI: Raymond Osarogiagbon) September 2018

Title: Improving the Reach and Quality of Cancer Care in Rural Populations

Source: NIH

New Submission

Score: 61

Role and % effort: Co-Investigator (20%)

R21 (PI: Matthew Smeltzer) February 2018
 Title: Assessing the Risk of Post-Operative Mortality After Curative Intent Surgery for Non-Small Lung Cancer in the United States.
 Source: NIH
 New Submission
 Role and effort: Co-Investigator (15%)

American Heart Association (PI: Brandt Pence) January 2018
 Title: Aging and Metabolic Flexibility of Human Monocytes
 Source: AHA
 New submission
 Role and effort: Consultant

R03CA230977 (PI: Meredith Ray) October 2017
 Title: A semi-parametric approach to clustering binary variables in association with clinical outcomes in lung cancer patients
 Source: NCI/NIH
 New submission
 Role and effort: Principal Investigator (10%)

Publications

Articles accepted/in press/epub ahead of print

Articles Published

Statistical Methodology

1. **Ray M**, Bowman D, Csontos R, Van Arsdale RB, Zhang H. **2020**. A matrix-variate dirichlet process to model earthquake hypocentre temporal patterns. *Statistical Modelling*. 2020 Aug 25:1471082X20939767.
2. **Ray M**, Kang J, Zhang H, **2018**. Detecting Spatial Clusters via a Mixture of Dirichlet Processes. *Journal of Probability and Statistics*, 2018:3506794. Doi: 10.1155/2018/3506794.
3. **Ray M**, Tong X, Lockett GA, Zhang H, and Karmaus WJ, **2016**. An efficient approach to screening epigenome-wide data. *BioMed Research International*.
4. **Ray M**, Kang J, and Zhang H, **2016**. Identifying Activation Centers with Spatial Cox Point Processes Using fMRI Data. *IEEE/ACM Transactions on Computational Biology and Bioinformatics*, 13(6), pp.1130-1141.

Statistical Applications

1. Mahmood A, **Ray M**, Ward KD, Dobalian A, Ahn SN. **2022**. Longitudinal associations between insomnia symptoms and all-cause mortality among middle-aged and older adults: A population-based cohort study. *Sleep*. 2022 Jan 17.
2. Meadows-Taylor MB, Faris NR, Smeltzer MP, **Ray MA**, Fehnel C, Akinbobola O, Ariganjoye F, Patel A, Pacheco A, Mehrotra A, Fox R. **2022**. The Relative Survival Impact of Guideline-Concordant Clinical Staging and Stage-Appropriate Treatment of Potentially Curable Non-Small Cell Lung Cancer. *Chest*. 2022 Feb 3.

3. **Ray MA**, Faris NR, Fehnel C, Derrick A, Smeltzer MP, Meadows-Taylor MB, Ariganjoye F, Pacheco A, Optican R, Tonkin K, Wright J. **2021**. Survival Impact of an Enhanced Multidisciplinary Thoracic Oncology Conference in a Regional Community Health Care System. *JTO clinical and research reports*. 2021 Aug 1;2(8):100203. <https://doi.org/10.1016/j.jtocrr.2021.100203>.
4. **Ray MA**, Fehnel C, Akinbobola O, Faris NR, Taylor M, Pacheco A, Smeltzer MP, Osarogiagbon RU. **2021**. Comparative effectiveness of a lymph node collection kit versus heightened awareness on lung cancer surgery quality and outcomes. *Journal of Thoracic Oncology*. 2021 May 1;16(5):774-83.
5. Osarogiagbon RU, Smeltzer MP, Faris NR, **Ray MA**, Fehnel C, Ojeabulu P, Akinbobola O, Meadows-Taylor M, McHugh LM, Halal AM, Levy P. **2021**. Outcomes after use of a lymph node collection kit for lung cancer surgery: A pragmatic, population-based, multi-institutional, staggered implementation study. *Journal of Thoracic Oncology*. 2021 Apr 1;16(4):630-42.
6. Mahmood A, **Ray M**, Dobalian A, Ward KD, Ahn S. **2021**. Insomnia symptoms and incident heart failure: a population-based cohort study. *European heart journal*. 2021 Oct 21;42(40):4169-76.
7. Smeltzer MP, Faris NR, Fehnel C, Akinbobola O, Saulsberry A, Meadows-Taylor M, Pacheco A, **Ray M**, Osarogiagbon RU. **2021**. Impact of a lymph node specimen collection kit on the distribution and survival implications of the proposed revised lung cancer residual disease classification: a propensity-matched analysis. *JTO clinical and research reports*. 2021 Apr 1;2(4):100161.
8. Smeltzer MP, Boehmer LM, Kramar A, Asfeldt TM, Faris NR, Amorosi CF, **Ray MA**, Nolan VG, Oyer RA, Lathan CS, Osarogiagbon RU. **2021**. An optimal care coordination model for Medicaid patients with lung cancer: results from beta model testing. *Oncology Issues*. 2021 May 4;36(3):80-94.
9. Smeltzer MP, Lee YS, Faris NR, Fehnel C, Akinbobola O, Meadows-Taylor M, Spencer D, Sales E, Okun S, Giampapa C, Anga A, Pacheco A, **Ray MA**, and Osarogiagbon R. **2021**. Trends in Accuracy and Comprehensiveness of Pathology Reports for Resected NSCLC in a High Mortality Area of the United States. *Journal of Thoracic Oncology*. 2021 Oct 1;16(10):1663-71.
10. Meadows-Taylor M, Ward KD, Chen W, Faris NR, Fehnel C, **Ray MA**, Ariganjoye F, Berryman C, Houston-Harris C, McHugh LM, Pacheco A, and Osarogiagbon R. **2021**. Interest in Cessation Treatment Among People Who Smoke in a Community-Based Multidisciplinary Thoracic Oncology Program. *JTO clinical and research reports*. 2021 Jun 1;2(6):100182.
11. Osarogiagbon RU, **Ray MA**, Faris NR, Smeltzer MP. **2021**. Response to:“Lymph Node Dissection for Non–Small-Cell Lung Cancer at Whose Discretion?”. *Journal of Thoracic Oncology*. 2021 May 1;16(5):e36-7
12. Feenaughty L, Guo LY, Weinstock-Guttman B, **Ray M**, Benedict RH, Tjaden K. **2020**. Impact of Cognitive Impairment and Dysarthria on Spoken Language in Multiple Sclerosis. *Journal of the International Neuropsychological Society*. Nov 16:1-1.

13. Osarogiagbon RU, **Ray M**, Faris NR, Smeltzer MP. **2020**. Response to Clinical Thoughts on Mediastinal Node Management in Early-Stage Lung Cancer. *Journal of Thoracic Oncology*. 2020 Nov 1;15(11):e185-6.
14. **Ray M**, Smeltzer MP, Faris NR, Osarogiagbon RU. **2020**. Survival After Mediastinal Node Dissection, Systematic Sampling, or Neither for Early Stage NSCLC. *Journal of Thoracic Oncology*. Jun 20.
15. **Ray M**, Faris NR, Derrick A, Smeltzer MP, Osarogiagbon RU. **2020**. Rurality, Stage-Stratified Use of Treatment Modalities and Survival of Non-small Cell Lung Cancer. *Chest*. May 6.
16. Ullmann G, Li Y, **Ray M**, Lee ST. **2020**. Study protocol of a randomized intervention study to explore effects of a pure physical training and a mind–body exercise on cognitive executive function in independent living adults age 65–85. *Aging clinical and experimental research*. Jun 22:1-8.
17. Mahmood A, Kim H, Kabir U, Kedia S, **Ray M**, **2020**. Food insecurity and influenza and pneumonia vaccines uptake among community-dwelling older adults in the United States. *Journal of Community Health* (e-pub ahead of print).
18. Osarogiagbon R, Faris N, Stevens W, Fehnel C, Houston-Harris C, Ojeabulu P, Akinbobola OA, Lee YS, **Ray M**, Smeltzer M, **2020**. Beyond Margin Status: Population-Based Validation of the Proposed International Association for the Study of Lung Cancer Residual Tumor Classification Recategorization. *Journal of Thoracic Oncology*. 15(3):371-82.
19. Osarogiagbon R, Lee YS, Faris N, **Ray MA**, Ojeabulu P, Smeltzer MP, **2019**. Invasive mediastinal staging for resected non–small cell lung cancer in a population-based cohort. *The Journal of thoracic and cardiovascular surgery*. 158(4):1220-9.
20. Smeltzer M, Faris N, **Ray M**, Fehnel C, Houston-Harris C, Ojeabulu P, Akinbobola O, Lee YS, Meadows M, Signore R, Wiggins L, **2019**. Survival Before and After Direct Surgical Quality Feedback in a Population-Based Lung Cancer Cohort. *The Annals of Thoracic Surgery*. 107(5):1487-93. pii: S0003-4975(18)31859-9. doi: 10.1016/j.athoracsur.2018.11.058.
21. **Ray M**, Faris NR, Smeltzer MP, Fehnel C, Houston-Harris C, Levy P, Wiggins L, Sachdev V, Robbins T, Spencer D, Osarogiagbon RU, **2018**. Effectiveness of implemented interventions on pathologic nodal staging of non-small cell lung cancer. *The Annals of Thoracic Surgery*. 106(1):228-34. pii: S0003-4975(18)30333-3. doi: 10.1016/j.athoracsur.2018.02.021. PMID:29534956
22. Smeltzer M, Faris N, **Ray M**, Osarogiagbon R, **2018**. Association of pathologic nodal staging quality with survival among patients with non-small cell lung cancer after resection with curative intent. *JAMA Oncol*. doi: 10.1001/jamaoncol.2017.2993. PMID:28973110
23. Smeltzer M, Rugless F, Jackson B, Berryman C, Faris N, **Ray M**, Meadows M, Patel A, Roark K, Kedia S, DeBon M, Crossley F, Oliver G, McHugh L, Hastings W, Osborne O, Osborne J, III T, III M, Jones W, Lee H, Signore R, Fox R, Li J, Robbins E, Ward K, Klesges L, Osarogiagbon RU, **2018**. Pragmatic trial of a multidisciplinary lung cancer care model in

- a community healthcare setting: study design, implementation evaluation, and baseline clinical results. *Transl Lung Cancer Res.* 7(1):88-102. doi: 10.21037/tlcr.2018.01.02. PMID:29535915.
24. Smith A, **Ray M**, Chalet S. **2018**. Primary Palate Trauma in Patients Presenting to US Emergency Departments, 2006-2010. *JAMA Otolaryngology*, 144(3):244-251. doi: 10.1001/jamaoto.2017.3071.
 25. Etchison AR, Bos L, **Ray M**, McAllister KB, Mohammed M, Park B, Phan AV, Heitz C, **2018**. Low-dose Ketamine Does Not Improve Migraine in the Emergency Department: A Randomized Placebo-controlled Trial. *West J Emerg Med.* 19(6):952-960. doi: 10.5811/westjem.2018.8.37875. [Epub 2018 Sep 10].
 26. Smith A, **Ray M**, Jain N, Zhang H, and Sebelik M, **2017**. The burden of angioedema on United States emergency departments: 2006–2010. *The Laryngoscope*, 127(4), 828-834.
 27. Kaushal A, Zhang H, Karmaus WJJ, **Ray M**, Torres M, Smith A, and Wang S, **2017**. Comparison of different cell type correction methods for genome-scale epigenetics studies. *BMC Bioinformatics*.
 28. Osarogiagbon R, **Ray M**, Faris N, Smeltzer M, Fehnel C, Houston-Harris C, Signore R, McHugh L, Levy P, Wiggins L, Sachdev V, and Robbins E, **2017**. Prognostic Value of National Comprehensive Cancer Network Lung Cancer Resection Quality Parameters. *The Annals of Thoracic Surgery*.
 29. Bowers K, McAllister K, **Ray M** and Heitz C, **2017**. Ketamine as an Adjunct to Opioids for Acute Pain in the Emergency Department: A randomized controlled trial. *Academic Emergency Medicine*.
 30. Smith A, Thimmappa V, Shepherd B, **Ray M**, Sheyn A, and Thompson J, **2016**. Invasive fungal sinusitis in the pediatric population: Systematic review with quantitative synthesis of the literature. *International Journal of Pediatric Otorhinolaryngology*, 90, pp.231-235.
 31. Lockett GA, Soto-Ramírez N, **Ray M**, Everson TM, Xu CJ, Patil VK, Terry W, Kaushal A, Rezwan FI, Ewart SL, and Gehring U, **2016**. Association of season of birth with DNA methylation and allergic disease. *Allergy*, 71(9), pp.1314-1324.
 32. Alexander M, **Ray M**, Hébert JR, Youngstedt SD, Zhang H, Steck SE, Bogan RK and Burch JB, **2016**. The National Veteran Sleep Disorder Study: Descriptive Epidemiology and Secular Trends, 2000-2010. *Sleep*, 39(7), pp.1399-1410.
 33. Quraishi BM, Zhang H, Everson TM, **Ray M**, Lockett GA, Holloway JW, Tetali SR, Arshad SH, Kaushal A, Rezwan FI, and Karmaus W, **2015**. Identifying CpG sites associated with eczema via random forest screening of epigenome-scale DNA methylation. *Clinical epigenetics*, 7(1), p.68.
 34. Alexander M, Burch JB, Steck SE, Chen CF, Hurley TG, Cavicchia P, **Ray M**, Shivappa N, Guess J, Zhang H, and Youngstedt SD. **2015**. Case-control study of the PERIOD3 clock gene length polymorphism and colorectal adenoma formation. *Oncology reports*, 33(2), pp.935-941.

35. **Ray M**, Youngstedt SD, Zhang H, Robb SW, Harmon BE, Jean-Louis G, Cai B, Hurley TG, Hébert JR, Bogan RK, and Burch JB. **2014**. Examination of wrist and hip actigraphy using a novel sleep estimation procedure. *Sleep science*, 7(2), pp.74-81.
36. Zhang H, Tong X, Holloway JW, Rezwan FI, Lockett GA, Patil V, **Ray M**, Everson TM, Soto-Ramírez N, Arshad SH, and Ewart S. **2014**. The interplay of DNA methylation over time with Th2 pathway genetic variants on asthma risk and temporal asthma transition. *Clinical epigenetics*, 6(1), p.8.
37. Mumtaz MM, **Ray M**, Crowell SR, Keys D, Fisher J, and Ruiz P. **2012**. Translational Research to Develop a Human PBPK Models Tool Kit—Volatile Organic Compounds (VOCs). *Journal of Toxicology and Environmental Health, Part A*, 75(1), pp.6-24.
38. Ruiz P, **Ray M**, Fisher J, and Mumtaz M. **2011**. Development of a human physiologically based pharmacokinetic (PBPK) toolkit for environmental pollutants. *International journal of molecular sciences*, 12(11), pp.7469-7480.

Statistical Packages

1. Handwerker J, Sobral L, and **Ray M**, **2021**. RHclust: Vectors in Partitioning. R Core Team. R: A language and environment for statistical computing. R Foundation for Statistical Computing, Vienna, Austria. URL: <http://www.R-project.org>. (package senior-author)
2. Terry W, **Ray M**, and Zhang H, **2016**. PathSeletMP: Backwards Variable Selection for paths using M Plus. R Core Team. R: A language and environment for statistical computing. R Foundation for Statistical Computing, Vienna, Austria. URL: <http://www.R-project.org>. (package co-author)
3. **Ray M**, Tong X, and Zhang H, **2014**. ttScreening: Genome-wide DNA methylation sites screening by use of training and testing samples. R Core Team. R: A language and environment for statistical computing. R Foundation for Statistical Computing, Vienna, Austria. URL: <http://www.R-project.org>. (package maintainer)
4. Bao W, Tong X, **Ray M**, and Zhang H, **2014**. RegClust: Cluster analysis via regression coefficients. R Core Team. R: A language and environment for statistical computing. R Foundation for Statistical Computing, Vienna, Austria. URL: <http://www.R-project.org>. (package maintainer)

Presentations

Invited Speaker

1. Invited speaker at the International Conference on Mathematics and Statistics 2018 in Memphis, TN, May 7-10. "Identifying significant regions of brain activation with the use of fMRI meta data".

Invited Panel Discussant

1. Invited panel discussant at the Memphis DATA: A Data Science Conference in Memphis, TN, March 29, 2019 for Panel on Opportunities and Challenges for Data Science in Biomedical Research.

Conference/Workshop Oral Presentations

The presenter is listed as the first author.

1. Osarogiagbon R, Liao W, Faris N, Smeltzer, Meadows-Taylor M, **Ray M**, Fehnel C, Goss J, Williams S, Akinbobola O, Pacheco A, Epperson A, Luttrell J, McCor D, Lammers P, Bishop A, Tonkin K, Optican R, Wright J, and Robbins T. Lung Cancer Detected by Screening, Incidental Lung Nodule Program and Neither: A Prospective Observational Study. Oral presentation at IASLC WCLC **2021 September 12, 2021**.
2. **Ray M**, Lee Y, Faris N, Fehnel C, Akinbobola O, Meadows-Taylor M, Spencer D, Sales E, Okun S, Giampap C, Anga A, Pacheco A, Smeltzer M, and Osarogiagbon R. Intrapulmonary Lymph Node (LN) Retrieval With a Novel Gross Dissection Method: A Prospective, Population-Based Cohort Study. Oral presentation at IASLC WCLC 2021 **September 12, 2021**.
3. Mahmood A, **Ray MA**, Dobalian A, Ward K, and Ahn S. (**October 2021**). Association between insomnia symptoms and incident heart failure among middle-aged and older adults: A population-based cohort study. Oral presentation at the American Public Health Association annual meeting.
4. West NT, San Diego ERN, Calvin V, Pichon LC, Ward KD, **Ray MA**, Rugless F, Lewis J, McNeal S, Campbell B, Hales L, Harmon BE. (**October 2021**). Examining self-reported needs of church leaders and church members: A secondary data analysis of the mid-south congregational health survey. Oral presentation at the American Public Health Association annual meeting.
5. **Ray M**, Smeltzer M, Faris N, Lee YS, Fehnel C, Akinbobola O, Ojeabulu P, Eubanks R, Talton D, Valaulikar G, Wiggins L, Levy P, Robbins T, Osarogiagbon R. location of Lymph Nodes Missed after Invasive Mediastinal Staging in a Well-Staged Non-Small Cell Lung Cancer Cohort. **2020**. Mini-oral presentation at the (virtual) 2020 IASLC WCLC January 28-31, 2021 .
6. Smeltzer M, et al. **2020**. Improving Overall Survival in Non-Small Cell Lung Cancer by Reducing R-Uncertain Resections With a Lymph Node Specimen Collection Kit. **2020**. Mini-oral presentation at the (virtual) 2020 IASLC WCLC January 28-31, 2021.
7. Osarogiagbon R, Smeltzer M, Faris N, Akinbobola O, Fehnel C, Lee YS, Taylor M, **Ray M**. **2020**. Comparative Effectiveness of a Lymph Node Collection Kit Versus 'Heightened Awareness' on Lung Cancer Surgery Quality and Outcomes. Mini-oral presentation at the (virtual) 2020 IASLC WCLC January 28-31, 2021.

8. Smeltzer M, Boehmer L, Kramar A, Asfeldt T, Faris N, Amorosi CF, **Ray M**, Nolan VG, Oyer RA, Lathan CS, Osarogiagbon RU. **2020**. An Optimal Care Coordination Model (OCCM) for Medicaid patients with lung cancer: Results from the beta model testing phase of a multisite initiative in the United States. Oral presentation at the (virtual) American Society of Clinical Oncology, Oct. 9-10.
9. Smeltzer M, Boehmer L, Kramar A, Asfeldt T, Faris NR, **Ray M**, Lathan CS, Osarogiagbon RU. **2020**. An optimal care coordination model for Medicaid patients with lung cancer: Lessons learned from the beta testing phase of a multisite initiative in the United States. Oral presentation at the (virtual) American Society of Clinical Oncology Quality Care Symposium, May 29-31.
10. Osarogiagbon RU, Faris NR, Smeltzer M, Derrick A, Lammers PE, Satpute SR, Walsh W, Sroufe R, Robbins T, Tokin K, Optican R, Fulfor A, McHugh L, Wright J, Mehrotra A, Callihan T, **Ray M**. **2020**. Survival impact of multidisciplinary thoracic oncology care in a regional healthcare system. Oral presentation at the (virtual) American Society of Clinical Oncology Quality Care Symposium, Oct. 9-10, 2020.
11. Smeltzer M, **Ray M**, Faris N, Meadows M, Fehnel C, Akinbobola O, Jackson BM, Foust C, McHugh L, Signore RS, Robbins ET, Osarogiagbon R. **2020**. Outcomes from a multidisciplinary thoracic oncology conference (MTOC) versus serial care (SC) in a community healthcare system. Mini-oral presentation at the (virtual) American Society of Clinical Oncology Quality Care Symposium, Oct. 9-10, 2020.
12. **Ray M**, Faris N, Fehnel C, Houston-Harris C, Akinbobola O, Ojeabulu P, Smeltzer M, and Osarogiagbon R. **2019**. Mediastinal Lymph Node Dissection (MLND) v Systematic Sampling (SS) v Neither (NN) in Population-Based Cohort. Oral presentation at the IASLC World Lung Conference in Barcelona, Spain, September 8, 2019.
13. Smeltzer M, Asfeldt T, Faris N, Kramar A, Amorosi C, Nolan V, **Ray M**, Dawkins M, Nalan MC, Stevens W, Lucas L, Oyer R, Lathan C, and Osarogiagbon R. **2019**. Testing an Optimal Care Coordination Model (OCCM) for Lung Cancer in a Multi-Site Study. Oral presentation at the IASLC World Lung Conference in Barcelona, Spain, September 10, 2019.
14. Paquette M, Ryan M, **Ray M**, Napier C. **2019**. Are we moving forward in research on risk factors for running-related injuries? Invited Presentation, Running Injury Symposium at the American Society of Biomechanics/International Society of Biomechanics conference. Calgary, AB, Canada. July 30 - August 3.
15. **Ray M**, Sobral L, Arshad SH, Holloway J, Karmaus WJJ, and Zhang H. **2019**. Patterns of multi-genetic/epigenetic factors identified by a novel non-parametric clustering approach. Oral presentation at the annual Joint Statistical Meeting in Denver, CO, July 29, 2019.
16. **Ray M**, Sobral L, Arshad SH, Holloway J, Karmaus WJJ, and Zhang H. **2019**. Patterns of multi-genetic/epigenetic factors identified by a novel non-parametric clustering approach. Oral presentation at Memphis DATA: A Data Science Conference in Memphis, TN, March 29, 2019.
17. **Ray M**, Faris N, Fehnel C, Houston-Harris C, Smeltzer M, and Osarogiagbon R. **2018**.

- Improvement of National Quality Parameters across Kit and Pathologic Interventions. Oral presentation at the Mid-South Lung Cancer Surgery Symposium at Baptist Memorial Hospital on March 1st in Memphis, Tennessee.
18. **Ray M**, Bowman D, Van Arsdale R, and Zhang H. **2017**. Modeling Spatiotemporal Patterns of Earthquake Epicenters. Presented at the University of Memphis, School of Public Health's EBE Colloquium in April in Memphis, TN.
 19. **Ray M**, Bowman D, Van Arsdale R, and Zhang H. **2017**. Detecting earthquake epicenter temporal patterns via Dirichlet Process. Speed presentation (with short e-poster session afterwards) at the 2017 Joint Statistical Meetings in July in Baltimore, MD.
 20. **Ray M**, Faris N, Fehnel C, Houston-Harris C, Smeltzer M, and Osarogiagbon, R. **2017** Using the Reach and Adoption Domains to Study Implementation of the Lymph Node Collection Kit. Oral Presentation at the Mid-South Lung Cancer Surgery Symposium at Baptist Memorial Hospital on April 6th in Memphis, Tennessee.
 21. Smeltzer M, Lee Y, Faris N, **Ray M**, Fehnel C, Houston-Harris C, Ojeabulu P, Akinbobola O, Deese L, Owen E, Wolf B, Wiggins H, Mutrie C, Sachdev V, Levy P, Signore R, Robbins E, and Osarogiagbon R. **2017**. Thoroughness of staging and the outcomes of surgical resection outcomes in potentially curable non-small cell lung cancer (NSCLC). Oral presentation at 18th World Conference on Lung Cancer; October 15-18, 2017; Yokohama, Japan.
 22. Ward K, Smeltzer M, Rugless F, Faris N, **Ray M**, Jackson B, Foust C, Patel A, Meadows M, Boateng N, Roark K, Crossley F, Oliver G, McHugh L, Hastings W, Osborne O, Osborne J, III T, III M, Signore R, Fox R, Robbins E, and Osarogiagbon R. **2017**. Prospective Comparative Evaluation of Patient and Caregiver Perspectives on a Multidisciplinary Model of Lung Cancer Care. Oral session presented at 18th World Conference on Lung Cancer; October 15-18, 2017; Yokohama, Japan
 23. Smeltzer M, Rugless F, Lee H, Ward K, Faris N, **Ray M**, Meadows M, Jiang B, Jaskson B, Foust C, Patel A, Boateng N, Kedia S, Roark K, Houston-Harris C, Fehnel C, Signore R, Fox R, Robbins E, Li J, and Osarogiagbon R. **2017**. A Prospective Comparative Evaluation of the Process of Care in a Multidisciplinary (MD) Clinic for Non-small Cell Lung Cancer (NSCLC): Timeliness, Thoroughness, and Patient/Caregiver Perspectives. Oral session presented at IASLC Chicago MD Symposium in Thoracic Oncology; September 14-16, 2017; Chicago, IL.
 24. Smith A, Liddle V, **Ray M**, Basura G, and Chalet S. **2017**. Imaging for Primary Bell's Palsy in United States Emergency Rooms - Oral Presentation at the International Facial Nerve Symposium August 3-6 2017, Los Angeles, CA.
 25. Smith A, Liddle V, **Ray M**, and Chalet S. **2017**. Nasal Valve Surgery: Trends in Ambulatory Surgery Centers from 2008 to 2013 - Oral Presentation at American Academy of Facial Plastic And Reconstructive Surgery Annual Meeting, October 26-28, 2017, Phoenix, AZ.
 26. Smith A, **Ray M**, Zhang H, and Sebelik M, **2016**. The Burden of Angioedema Presenting to United States EDs: 2006-2010. Oral presentation delivered at Triological Society Meeting at COSM, Chicago, IL.

27. Bowers K, McAllister K, **Ray M**, and Heitz C, **2015**. Ketamine as an Adjunct to Opiates for Acute Pain in the Emergency Department. Oral presentation delivered at American College of Emergency Physicians (ACEP), Scientific Assembly, Boston, MA.
28. **Ray M**, Zhang H, and Kang J, **2015**. Identifying significant regions of brain activation with the use of fMRI meta data. Oral presentation delivered at the Joint Statistical Meetings (JSM)-American Statistical Association, Seattle, WA.
29. Cantwell LM, **Ray M**, and Fortuna TJ, **2015**. The Effect of Helmet Cameras on Risk-Taking Behavior Among Mountain Bikers. Oral presentation delivered at Wilderness & Environmental Medicine, Annual Meeting, Breckenridge, CO.
30. **Ray M**, Zhang H, and Kang J, **2015**. Methods for Identifying Activation Centers within the Brain using fMRI Meta-data. Oral presentation delivered at the University of Memphis, Mathematics Department, Memphis, TN.
31. **Ray M**, Tong X, Zhang H, and Karmaus WJJ, **2015**. Screening genome-wide DNA methylation CpG sites via training and testing data utilizing surrogate variables. Oral presentation delivered at the University of Memphis, Bioinformatics Department, Memphis, TN.
32. **Ray M**, Tong X, Zhang H, and Karmaus WJJ, **2014**. Screening genome-wide DNA methylation CpG sites via training and testing data utilizing surrogate variables. Oral presentation delivered at the University of Memphis, Division of Epidemiology, Biostatistics, and Environmental Science, Memphis, TN.
33. **Ray M**, Zhang H, and Kang J, **2014**. Clustering fMRI meta data to identify significant regions of brain activation. Oral presentation delivered at the Joint Statistical Meetings (JSM)-American Statistical Association, Boston, MA.
34. Lockett GA, Soto-Ramírez N, **Ray M**, Zhang H, Rezwan F, Ewart SE, Arshad SH, Karmaus W, and Holloway JW, **2014**. Association of Season of Birth with DNA methylation. Oral presentation delivered at the European Academy of Allergy and Clinical Immunology, Copenhagen, Denmark.
35. **Ray M**, Zhang H, and Kang J, **2014**. Clustering Significant Regions of Brain Activation Using fMRI Meta Data. Contributed Paper: Bayesian Methods. Oral presentation delivered at the Eastern North American Region (ENAR), Baltimore, MD.

Posters/E-Abstracts

1. Liao W, Smeltzer M, Faris N, Fehnel C, Goss J, Eppers A, William S, Meadows-Taylor M, Akinbobola O, Pacheco A, Luttrell J, McCoy D, Tonkin K, Optican R, Wright J, Robbins T, Satpute S, Harris P, **Ray M**, and Osarogiagbon R. 2021. Identifying Risk-Factors for Lung Cancer Diagnosis After Detection of Incidental Lung Nodules. Poster presentation at IASLC WCLC 2021 **September 12, 2021**.
2. Taylor MB, **Ray M**, Faris N, Smeltzer M, Fehnel C, Pacheco A, Patel A, Berryman C, McHugh L, Kershner P, Parker S, Lammers P, Satpute S, Walsh W, Wright J, Fox R, Optican R, Tokin K, Robbins ET, and Osarogiagbon R. **2021**. A disease-based evaluation

- of lung cancer care quality in a community healthcare system. Poster presentation at the 2021 ASCO Quality Care Symposium.
3. Smeltzer M, Liao W, Meadows-Taylor M, Faris N, Fehnel C, Goss J, Williams SC, Akinbobola O, Pacheco A, Epperson A, Luttrell J, McCoy D, Tokin K, Optican R, Wright J, Robbins ET, Satpute S, Harris P, **Ray M**, and Osarogiagbon R. **2021**. Early detection of lung cancer with an incidental lung nodule program (ILNP). Poster presentation at the 2021 ASCO Quality Care Symposium.
 4. Smeltzer M, Liao W, Taylor MB, Fehnel C, Faris N, Lane JG, Williams SC, Akinbobola O, Pacheco A, Epperson A, Luttrell J, McCoy D, Smith E, Adams K, **Ray M**, Robbins T, Wright J, and Osarogiagbon R. **2021**. Comparing US Preventive Services Task Force 2013 versus 2021 lung cancer screening eligibility. Poster presentation at the 2021 ASCO Quality Care Symposium.
 5. Shao H, Faris N, Taylor MB, Fehnel C, Patel A, Weller S, Berryman C, Akinbobola O, Pacheco A, McHugh L, Debon M, Smeltzer M, **Ray M**, Robbin T, Ward K, and Osarogiagbon R. **2021**. Patient and caregiver's satisfaction with multidisciplinary vs. serial lung cancer care in a community setting. Poster presentation at the 2021 ASCO Quality Care Symposium.
 6. Mahmood A, Kabir U, Kedia S, and **Ray M**. **2020**. Food insecurity and influence and pneumonia vaccines uptake among community-dwelling older adults in the United States. In APHA's 2020 VIRTUAL Annual Meeting and Expo (Oct. 24-28) 2020 Oct 25. American Public Health Association.
 7. Osarogiagbon R, Smeltzer M, Faris N, Fehnel C, Houston-Harris C, Akinbobola O, **Ray M**. (**2020**, December). RE-aiming lung cancer surgery quality by disseminating a lymph node kit - a population-based implementation study. Mini-oral poster presentation at: 13th Annual Conference on the Science of Dissemination and Implementation in Health.
 8. Meadows M, Smeltzer M, **Ray M**, Faris N, Fehnel C, Akinbobola O, Jackson B, Foust C, McHugh L, Signore RS, Fox R, Wright J, Optican R, Tonkin K, Robbins ET, Osarogiagbon R. **2020**. The Relative Survival Impact of Thorough Staging and Appropriate Treatment in Non-Small Cell Lung Cancer (NSCLC). Poster presented at the 2020 North America Conference on Lung Cancer.
 9. Meadows M, **Ray M**, Smeltzer M, Faris N, Fehnel C, Akinbobola O, Jackson B, Foust C, McHugh L, Signore RS, Wright J, Robbins ET, Osarogiagbon R. **2020**. A comparison of two models of multidisciplinary lung cancer care within a community-based healthcare system. *Journal of Clinical Oncology*; 38(29) 36.
 10. Smeltzer M, Boehmer L, Kramar A, Asfeldt T, Faris NR, **Ray M**, Lathan CS, Osarogiagbon RU. **2020**. An optimal care coordination model for Medicaid patients with lung cancer: Lessons learned from the beta testing phase of a multisite initiative in the United States. *Journal of Clinical Oncology*; 38(29) e14010.
 11. Ullmann G, Li Y, **Ray M**. **2019** Effects of Mindful Feldenkrais Exercises and Strength Training on Cognitive Executive Function in Older Adults. *Innovation in Aging*. 2019 Nov;3(Suppl 1):S649.

12. Smeltzer M, Stevens W, Faris NR, Kethireddy J, Meadows MB, **Ray M**, Epperson A, Adams K, Fulford A, Wagh A, Machin J. **2019**. Lung cancer diagnosed by an incidental lung nodule program or lung cancer screening. *Journal of Clinical Oncology*; 37(15) 8546-8546.
13. Osarogiagbon RU, Faris NR, Smeltzer M, **Ray M**, Ward KD, Rugless F, Jackson BM, Meadows MB, Berryman C, Fehnel C, Houston-Harris C. **2019**. Prospective comparative effectiveness trial of multidisciplinary lung cancer (LC) care. *Journal of Clinical Oncology*; 37(15) 6549-6549.
14. Taylor M, Smeltzer M, Faris N, **Ray M**, Fehnel C, Houston-Harris C, Akinbobola O, Ojeabulu P, Osarogiagbon R. **2019** Racial Disparities in Long-Term Survival After Surgical Resection in the US. *Journal of Thoracic Oncology*;14(10) S602-S602.
15. **Ray M**, Faris NR, Derrick A, Smeltzer M, Osarogiagbon RU. **2019**. The relative impact of patient and institutional rurality on lung cancer disparities. *Journal of Clinical Oncology*; 37(15) e20052-e20052.
16. **Ray M**, Smeltzer M, Faris NR, Fehnel C, Houston-Harris C, Ojeabulu P, Akinbobola O, Wiggins L, Talton D, Owen E, Deese L. **2018**. Implementing improved pathologic nodal (pN) staging during non-small cell lung cancer (NSCLC) resection: A population-based study. Poster session at the ASCO Annual Meeting on June 1-5, 2018 in Chicago, IL.
17. Osarogiagbon RU, Smeltzer M, Faris NR, **Ray M**, Fehnel C, Houston-Harris C, Ojeabulu P, Akinbobola O, Wiggins L, Talton D, Owen E. **2018**. Pragmatic study of a lymph node (LN) collection kit for non-small cell lung cancer (NSCLC) resection. Poster session at the ASCO Annual Meeting on June 1-5, 2018 in Chicago, IL.
18. Ward KD, Chen W, Smeltzer M, Meadows MB, Faris NR, Berryman C, Jackson BM, Rugless F, **Ray M**, Osarogiagbon RU. **2018**. Patient-reported satisfaction with multidisciplinary (MD) v serial care (SC) for lung cancer. Poster session at the ASCO Annual Meeting on June 1-5, 2018 in Chicago, IL.
19. Smeltzer M, **Ray M**, Faris NR, Meadows MB, Fehnel C, Houston-Harris C, Ojeabulu P, Akinbobola O, Lee YS, Wiggins L, Talton D. **2018**. Survival in the population-based Mid-South Quality of Surgical Resection (MSQSR) Cohort. Poster session at the ASCO Annual Meeting on June 1-5, 2018 in Chicago, IL.
20. **Ray M**, Smeltzer M, Faris N, Lee Y, Fehnel C, Houston-Harris C, Akinbobola O, Ojeabulu P, Owen E, Eubanks R, Dox H. **2018**. Pattern and Survival Impact of Neoadjuvant Treatment of Non-Small Cell Lung Cancer (NSCLC) in a Prospective Lung Resection Cohort. *Journal of Thoracic Oncology*. 2018 Oct 1;13(10).
21. **Ray M**, Smeltzer M, Faris N, Lee Y, Fehnel C, Houston-Harris C, Akinbobola O, Ojeabulu P, Owen E, Eubanks R, Dox H. **2018**. Characteristics of Preoperative N Staging in Patients with Optimal Pathologic N Staging of Non Small Cell Lung Cancer (NSCLC). *Journal of Thoracic Oncology*. 2018 Oct 1;13(10).
22. Smeltzer M, Faris N, Kethireddy J, Meadows M, Nalan M, **Ray M**, Epperson A, Richards D, Adams K, Fulford A, Wagh A. **2018**. Comparing Lung Cancer Diagnosed by Low Dose CT (LDCT), Incidental Lung Nodule Program (ILNP), and Non-Program-Based Detection. *Journal of Thoracic Oncology*. 2018 Oct 1;13(10).

23. Smeltzer M, Faris N, **Ray M**, Fehnel C, Akinbobola O, Houston-Harris C, Ojeabulu P, Lee Y, Owen E, Eubanks R, Dox H. **2018**. A Population-Based Validation Study of the Proposed 'R-Factor' Classification in a Lung Cancer-Endemic Region of the US. *Journal of Thoracic Oncology*. 2018 Oct 1;13(10).
24. Lee Y, Smeltzer M, **Ray M**, Faris N, Fehnel C, Houston-Harris C, Akinbobola O, Ojeabulu P, Owen E, Eubanks R, Dox H. Survival Implications and Factors Associated with the Anatomic Level of Incomplete Non-Small-Cell Lung Cancer (NSCLC) Resection. **2018**. *Journal of Thoracic Oncology*. 2018 Oct 1;13(10).
25. Marbaugh A, Asfeldt T, Oyer R, Lathan C, Smeltzer M, Nolan V, **Ray M**, Faris N, Nalan M, Stevens W, Kramar A. **2018**. Creating an Optimal Care Coordination Model to Improve Multidisciplinary Care for Lung Cancer Patients on Medicaid. *Journal of Thoracic Oncology*. 2018 Oct 1;13(10).
26. Faris N, Smeltzer M, Fehnel C, Houston-Harris C, Ojeabulu P, Akinbobola O, **Ray M**, Lee Y, Deese L, Owen E, Wolf B, Wiggins H, Mutrie C, Sachdev V, Levy P, Signore R, Robbins E, and Osarogiagbon R. **2017**. Improving Survival with a Lymph Node (LN) Collection Kit for Non-Small Cell Lung Cancer (NSCLC) Resections. Poster session at 18th World Conference on Lung Cancer on October 15-18, 2017 in Yokohama, Japan.
27. Rugless F, **Ray M**, Smeltzer M, Jackson B, Foust C, Patel A, Boateng N, Faris N, Houston-Harris C, Fehnel C, Meadows M, Roark K, McHugh L, Signore R, Robbins E, Fox R, and Osarogiagbon R. **2017**. Prospective cohort study of patterns of staging and treatment selection with or without multidisciplinary (MD) care. Poster session presented at 18th World Conference on Lung Cancer on October 15-18, 2017 in Yokohama, Japan
28. Lee YS, Smeltzer MP, Meadows MB, Robbins ET, Faris N, Mutrie C, **Ray M**, Signore S, Fehnel C, Higgins D, Houston-Harris C, Osarogiagbon R. **2017**. Sex as an Effect Modifier for the Association of Age and Post-Operative Mortality in Non-Small Cell Lung Cancer (NSCLC). *Annals of Epidemiology*, 27(8), 509.
29. Smeltzer M, Meadows MB, Faris N, Rugless-Stewart F, **Ray M**, Lee Y, Boateng N, Foust C, Jackson B, Patel A, Fehnel C, Houston-Harris C, Signore R, Robbins ET, Osarogiagbon R. **2017**. Increased Use of PET-CT, Invasive Staging, and Surgical Resection with a Multidisciplinary Lung Cancer Care Model: Effectiveness Endpoints form an Implementation Study. *Annals of Epidemiology*, 27(8), 507.
30. Reish L, Aizezi S, Sweat D, Mzayek F, and **Ray M**. **2017**. Investigating Missed Opportunities for Prevention of Mycobacterium Tuberculosis Transmission within Contacts of Tuberculosis Cases in Shelby County, Tennessee. Poster presentation delivered at the American College of Epidemiology (ACE) Annual Meeting, September 24-26 at the Westin Hotel at the Canal, New Orleans, Louisiana.
31. Reish L, Aizezi S, Sweat D, Mzayek F, and **Ray M**. **2017**. Investigating Missed Opportunities for Prevention of Mycobacterium Tuberculosis Transmission within Contacts of Tuberculosis Cases in Shelby County, Tennessee. Poster presentation delivered at the Tennessee Public Health Association (TPHA) Conference, September 13-15 at the Cool Springs Conference Center in Franklin, Tennessee.

32. **Ray M**, Faris N, Rugless Stewart F, Smeltzer M, Boateng N, Meadows MB, Faust C, Jackson B, Boateng N, Patel A, Fehnel C, Houston-Harris C, Signore R, Robbins E, and Osarogiagbon R. **2017**. Treatment of lung cancer patients in multidisciplinary (MDC) and serial care (SC) clinics. *Journal of Clinical Oncology*. 35:15_suppl, 8522-8522.
33. **Ray M**, Faris N, Rugless F, Smeltzer M, Faust C, Jackson B, Boateng N, Patel A, Fehnel C, Houston-Harris C, and Osarogiagbon R, **2017**. Multidisciplinary (MultiD) Care and the Use of Treatment Modalities for Non-Small Cell Lung Cancer (NSCLC) in a Large Community Healthcare Setting. Poster presentation delivered at the Multidisciplinary Thoracic Symposium, San Francisco, CA.
34. Smeltzer M, Lee Y, Robbins E, Faris N, Mutrie C, **Ray M**, Signore S, Fehnel C, Houston-Harris C, Meadows M, and Osarogiagbon R., **2017**. P1. 08-021 Predictors of Post-Operative Mortality in Non-Small Cell Lung Cancer (NSCLC) in a High Mortality Region of the US: Topic: Risk Assessment and Prognostic Factors. *Journal of Thoracic Oncology*, 12(1), S743.
35. Faris N, Lee Y, Meadows M, Smeltzer M, **Ray M**, Ward K, Fehnel C, Houston-Harris C, and Osarogiagbon R., **2017**. P1. 01-021 The Impact of Smoking Status on Overall Survival in a Population-Based Non-Small Cell Lung Cancer (NSCLC) Surgical Resection Cohort: Topic: Protective Factors, Risk Reduction, Smoking Cessation. *Journal of Thoracic Oncology*, 12(1), S461.
36. Faris N, **Ray M**, Smeltzer M, Fehnel C, Houston-Harris C, Levy P, Mutrie C, Wolf B, Deese L, Wiggins L, and Sachdev V, **2017**. P1. 08-020 The Effect of Two Interventions on Attainment of Surgical Quality Measures in Resected Non-Small Cell Lung Cancer (NSCLC): Topic: Risk Assessment and Prognostic Factors. *Journal of Thoracic Oncology*, 12(1), S742-S743.
37. Lee YS, Smeltzer M, Faris N, **Ray M**, Fehnel C, Houston-Harris C, Meadows M, Levy P, Mutrie C, Wolf B, and Deese L, **2017**. P1. 01-030 Factors Associated with Margin Positive Resections for Non-Small Cell Lung Cancer (NSCLC) in the Mid-South Region of the US: Topic: Lung Cancer Screening, Diagnosis. *Journal of Thoracic Oncology*, 12(1), S466-S467.
38. Osarogiagbon R, Faris N, Smeltzer M, **Ray M**, Fehnel C, Houston-Harris C, Levy P, Mutrie C, Wolf B, Dees L, and Wiggins L, **2017**. P1. 08-027 Evolution of Survival in a Regional Population-Based US Lung Cancer Resection Cohort: Topic: Epidemiologic Studies in Surgery for NSCLC. *Journal of Thoracic Oncology*, 12(1), S747.
39. Smeltzer M, Faris N, Fehnel C, Houston-Harris C, **Ray M**, Lee Y, Meadows M, Signore S, Mutrie C, Robbins E, and Osarogiagbon R, **2017**. P1. 05-044 The Impact of IASLC 8th Edition Updates for T-Classification for Lung Cancer in a US Population-Based Surgical Resection Cohort: Topic: Surgery. *Journal of Thoracic Oncology*, 12(1), S640-S641.
40. Spencer G, Smeltzer M, Faris N, Fehnel C, Houston-Harris C, **Ray M**, Finch-Cruz C, Berry A, Gianpapa C, Hilsenbeck H, and Sales E, **2017**. P3. 01-031 Impact of a Novel Lung Gross Dissection Method on Intrapulmonary Lymph Node Yield: Topic: Morphology. *Journal of Thoracic Oncology*, 12(1), S1138-S1139.
41. Rugless F, Smeltzer M, **Ray M**, Patel A, Boateng N, Jackson B, Foust C, Klesges L, Faris

- N, Roark K, and Signore S, **2017**. P2. 08-010 The Reach and Adoption of a Multidisciplinary Thoracic Oncology Program within a US Community Healthcare System: Topic: Other. *Journal of Thoracic Oncology*, 12(1), S1115.
42. Smeltzer M, Faris N, Fehnel C, Houston-Harris C, **Ray M**, Lee YS, Meadows M, Robbins E, Signore S, Mutrie C, and Osarogiagbon R, **2017**. P1. 03-067 Validation of the IASLC 8th Edition (8E) TNM Classification for Non-Small Cell Lung Cancer by the Quality of Surgical Resection in a US Cohort: Topic: Staging. *Journal of Thoracic Oncology*, 12(1), S585-S586.
 43. Smeltzer M, Klesges L, Lee YS, Faris N, Fehnel C, Houston-Harris C, **Ray M**, Robins E, and Osarogiagbon R, **2016**. Ps01. 39: Reach and Adoption of a Surgical Intervention to Improve Pathologic Nodal Staging Across Healthcare Systems within the Us Mid-south. *Journal of Thoracic Oncology*, 11(11), S293.
 44. Smith A, **Ray M**, Zhang H, and Chalet S, **2016**. Palate Trauma Presenting to United States Emergency Rooms: 2006-2010. Poster Presentation delivered at the American Academy of Facial Plastic and Reconstructive Surgery (AAFPRS) meeting, Chicago, IL.
 45. Bowers KJ, McAllister KB, **Ray M**, and Heitz CR, **2015**. Ketamine as an Adjunct to Opiates for Acute Pain in the Emergency Department. Poster Presentation delivered at the Virginia Tech Carilion Research Day, Roanoke, VA.
 46. Bowers KJ, McAllister KB, **Ray M**, and Heitz CR, **2015**. Ketamine as an Adjunct to Opiates for Acute Pain in the Emergency Department. Poster Presentation delivered at the Carilion Clinic Research Day, Roanoke, VA.
 47. Burch JB, Delage AF, Zhang H, McLain AC, **Ray M**, Adams SA, and Hébert JR, **2015**. Sleep Disorders among Veterans: Implications for Cancer Risk. Poster Presentation delivered at the 39th Annual Meeting of the American Society of Prevention Oncology, Birmingham, AL.
 48. Zhang H, **Ray M**, Tong X, and Karmaus WJJ, **2014**. Screening genome-wide DNA methylaiton CpG sites via training and testing data utilizing surrogate variables. Section: Bioinformatics of Health and Disease (Poster # 4). Poster Presentation delivered at the UT-KBRIN Bioinformatics Summit 2014, Cadiz, KY.
 49. Burch JB, Alexander M, Steck SE, Chen CF, Zhang H, Hurley TG, Guess J, **Ray M**, Shivappa N, Cavicchia P, Youngstedt S, Creek KE, Lloyd S, and Hébert JR, **2013**. Case-Control Study of *PERIOD3* Clock Gene Length Polymorphism and Colorectal Adenoma Risk. Poster Presentation delivered at the 21st International Symposium on Shiftwork and Working Time, Costa do Sauípe, Brazil.
 50. Mumtaz M, Ruiz P, **Ray M**, Fisher J, and Hays S, **2011**. A Physiologically Based Pharmacokinetic (PBPK) Tool Kit to Evaluate Exposures to Environmental Pollutants. Poster Presentation delivered at the 50th Annual Society of Toxicology Meeting, Washington, D.C.
 51. Moffett DB, Welsh C, Fowler D, Rogers R, **Ray M**, Ritger S, Keys D, and Fisher J, **2010**. Comparison of Traditional Exposure Assessment and Physiologically Based Pharmacokinetic Modeling. Poster Presentation delivered at the 49th Annual Society of

Toxicology Meeting, Salt Lake City, UT.

52. Mumtaz M, Ruiz P, **Ray M**, Fisher J, and Hays S, **2010**. Development of a Physiologically Based Pharmacokinetic (PBPK) Tool Kit to Address Public Exposures to Environmental Pollutants. Poster Presentation at delivered at 49th Annual Society of Toxicology Meeting, Salt Lake City, UT.
53. **Ray M**, Ritger SE, Mumtaz M, Ruiz P, Welsh C, Fowler DA, Keys D, and Fisher J, **2009**. Addressing Public Exposures to Priority Solvents using Human PBPK Models. Poster Presentation delivered at 48th Annual Society of Toxicology Meeting, Baltimore, MD.

Teaching

Courses taught at the University of Memphis

Graduate courses

<u>Course</u>	<u>Year</u>
Biostatistical Methods I	F: 2015-2018;2021
Biostatistical Methods I Online	F: 2016-2018;2020; S:2021; Su: 2018-2019
Biostatistical Methods II	S: 2016-2018;2020
Biostatistical Methods II Online	F: 2018; S: 2018
Bioinformatics Project	S: 2017-2018
Advanced Survival Analysis	S: 2022

Guest Lectures at the University of Memphis

March 2017-2019	Epidemiology in Public Health II, PUBH 7172 (1 lecture)
March 2016	Biostatistics in Bioinformatics, PUBH 7153/8153 (1 lecture)
April 2015	Genetic Epidemiology, PUBH 7445/8445 (1 lecture)
2020-2021	CSD PhD Colloquium Seminar

Workshops/Teaching Assistant

2017, 2016	2-day <i>R</i> Workshop, Summer Institute, University of Memphis
2019, 2014	2-day <i>R</i> Workshop, University of Memphis
2010-2013	Teaching Assistant, University of South Carolina, Columbia, SC
2013	Independent Tutor, Columbia, SC
2011	Teaching Practicum, University of South Carolina, Columbia, SC

Memberships and Committees

Memberships

2018-present	International Association for the Study of Lung Cancer
2017-present	American Society of Clinical Oncology
2015-present	Western Tennessee Chapter of the American Statistical Association
2014-present	American Statistical Association
2006-present	Chi Alpha Sigma National Honor Society
2006-present	Kappa Mu Epsilon Honor Society for Mathematics Majors
2006-present	Delta Epsilon Iota Academic Honor Society
2013-present	Golden Key International Honor Society
2007-present	Piedmont Torch Honor Society

University/College Committees

2022-present	MPH Student Achievement Award Committee
2020-present	COFAD
2021-present	MS Biostatistics Program Coordinator
2018-present	Journal club/colloquium
2018-present	School of Public Health – Epidemiology/Biostatistics PhD qualification exam
2020-present	School of Public Health - MS in Biostatics qualification exam
2019	School of Public Health- Division of Epidemiology, Biostatistics, and Environmental Faculty Search Committee, University of Memphis
2018	School of Public Health- Division of Health Systems Management and Policy Faculty Search Committee, University of Memphis
2018-present	School of Public Health Marketing Committee, University of Memphis
2018-present	School of Public Health, Masters of Science in Biostatistics Admission Committee Chair, University of Memphis
2017-present	Division of Epidemiology, Biostatistics, and Environmental Health Colloquium Leader, University of Memphis
2016-present	Epidemiology PhD Qualification Examination Committee, University of Memphis
2015-present	School of Public Health, Masters of Public Health Admission Committee, University of Memphis
2012-2013	Fun and Frolic Committee - Student Representative, Department of Epidemiology and Biostatistics, University of South Carolina

Community Service

Outreach Service

- Annual Judge for University of Memphis Graduate Research Forum (2016-current)
- Session Chair- 2019 International Conference on Mathematics and Statistics at the University of Memphis
- Assisted with a "Crash Course in R" workshop at the 2012 International Society for Environmental Epidemiology (ISEE) Conference in Columbia, SC

Professional Consulting

2014-2018	Statistical consultant for Virginia Tech Carilion School of Medicine and Research Institute, Roanoke, VA
2015-2018	Statistical Consultant for Secure Food Solutions

Journals Reviewed

- Journal of Thoracic Oncology
- Statistics in Medicine
- Journal of the American Statistical Association
- Journal of Applied Statistics
- Quaesitum (University of Memphis undergraduate journal)
- Computational and Mathematical Methods in Medicine
- Journal of Psychosomatic Research
- The American Journal of Medical Sciences
- Springer Book for the 6th Workshop on Biostatistics and Bioinformatics

Honors/Awards

2017	Marquis Who's Who in the World
2014	Outstanding Student for Biostatistics Department 2014
2014	Piedmont College P-Club Hall of Fame Member
2012-2013	HRSA Fellowship 2012-2013
2011-2012	ARRA Funding Award 2011-2012
2011	Best Presentation Award, 14 th International Workshop on QSARs in Environmental and Health Sciences Conference
2007	Graduated Magna Cum Laude - Piedmont College
2006	Named to Who's Who Among Students in American Universities and Colleges