

Katie Marie O'Brien, MSPH, PhD

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Contact Information

Phone 919.541.9954
Email obrienkm2@niehs.nih.gov

Degrees

2013 PhD in Epidemiology with a minor in Biostatistics, Gillings School of Global Public Health, University of North Carolina at Chapel Hill (UNC)
Race and subtype differences in the replication of previously identified breast cancer susceptibility loci: A Bayesian approach [Co-chairs: Robert Millikan and Stephen Cole]

2010 MSPH, Epidemiology, Gillings School of Global Public Health, University of North Carolina at Chapel Hill

2005 BA, Williams College, Williamstown, MA
Double Major: Mathematics and Psychology

2001 High school degree with honors, Shaker Heights HS, Shaker Heights, OH

Work Experience

May 2013- present Post-doctoral fellow, Biostatistics and Computational Biology Branch, National Institute of Environmental Health Sciences (NIEHS), Research Triangle Park, NC (Primary mentor: Clarice R. Weinberg, PhD)

2011-2013 Intern, *Epidemiology*

2007-2012 Graduate Research Assistant, Department of Epidemiology, UNC
Mentors: Drs. Lawrence Engel (2011-12), Robert Millikan (2008-11), and Audrey Pettifor (2007-08)

2005-2007 Data Manager (2005-06), promoted to Regulatory Coordinator (2006-07)
Division of Hematology and Medical Oncology
Weill Medical College of Cornell University, New York, NY

Teaching and Mentoring Experience

April 2016 "Vitamin D and Breast Cancer in the Sister Study: An Epidemiology Example". Guest lecture in "Rx for Science Literacy" presented by the North Carolina Association for Biomedical Research at the National Institutes of Environmental Health Sciences, Research Triangle Park, NC.

Fall 2015-present Co-mentor to undergraduate research fellow (N. Gonzalez)

Summers 2013-15 Co-mentor to NIEHS summer research fellows (J. Sun, D. Whelan, N. Gonzalez)

Spring 2015 Co-Instructor for "Professional Development for Epidemiology Students", Department of Epidemiology, UNC

Spring 2014 Primary instructor for "Bayesian Methods in Epidemiology: Basic principals and applications", Department of Epidemiology, UNC

November 2013	“An introduction to Bayesian methods for epidemiologists.” Guest lecture in “Epidemiologic Analysis of Binary Data”, Department of Epidemiology, UNC
Spring 2010	Teaching Assistant, “Theory and Quantitative Methods in Epidemiology”, Department of Epidemiology, UNC
2004-2005	Teaching assistant, Elementary Statistics and Data Analysis Teaching assistant, Intermediate Statistics Williams College
2003-2004	Junior advisor (resident mentor in freshmen dormitory) Teaching assistant, Quantitative Studies Teaching assistant, Elementary Statistics and Data Analysis Tutor, calculus and statistics Williams College
2002-2003	Tutor, calculus and statistics, Williams College

Programming Experience

SAS, STATA, R, and Plink in graduate courses
Splus, JMP, and SPSS in undergraduate statistics and psychology courses

Peer-reviewed Publications

* Shared first author, † Student under my supervision

O’Brien KM*, Shi M*, Sandler DP, Taylor JA, Zaykin DV, Keller J, Wise AS, and Weinberg CR. A family-based, genome-wide association study of young-onset breast cancer: Germline variants and maternally-mediated effects. *European Journal of Human Genetics*, Published ahead of print: doi:10.1038/ejhg.2016.11.

O’Brien KM, Upson K, Cook NR, and Weinberg CR. Environmental chemicals in urine and blood: Improving methods for creatinine and lipid adjustment. *Environmental Health Perspectives*. 2016; 124(2): 220-227.

O’Brien KM, Sun J†, Sandler DP, DeRoo LA, and Weinberg CR. Risk factors for young-onset breast cancer. *Cancer Causes and Control*. 2015; 26: 1771-1778.

O’Brien KM, Fei C, Sandler DP, Nichols HB, DeRoo LA, and Weinberg CR. Hormone therapy and young-onset breast cancer. *American Journal of Epidemiology*. 2015; 181: 799-807.

O’Brien KM, Cole SR, Engel LS, Bensen JT, Poole C, Herring AH, and Millikan RC. Breast cancer subtypes and previously established genetic risk factors: A Bayesian approach. *Cancer Epidemiology, Biomarkers and Prevention*. 2014; 23: 84-97.

O’Brien KM, Cole SR, Poole C, Bensen JT, Herring AH, Engel LS, and Millikan RC. Replication of breast cancer susceptibility loci in whites and African-Americans using a Bayesian approach. *American Journal of Epidemiology*. 2014; 179: 382-94.

O’Brien KM, Orlow I, Antonescu CR, Ballman K, McCall L, DeMatteo R, and Engel LS. Gastrointestinal stromal tumors: a case-only analysis of single nucleotide polymorphisms and somatic mutations. *Clinical Sarcoma Research*. 2013; 3:12.

O’Brien KM, Orlow I, Antonescu CR, Ballman K, McCall L, DeMatteo R, and Engel LS. Gastrointestinal stromal tumors, somatic mutations and candidate genetic risk variants, *PLoS One*. 2013; 8(4):e62119. doi:10.1371/journal.pone.0062119

Mordukhovich I, Reiter PL, Backes DM, Family L, McCollough LE, **O'Brien KM**, Razzaghi H, and Olshan AF. A review of African American-white differences in risk factors for cancer: prostate cancer, *Cancer Causes and Control*. 2011; 3: 341-357.

O'Brien KM, Cole SR, Tse CK, Perou CM, Carey LA, Foulkes WD, Dressler LG, Geradts J, and Millikan RC. Intrinsic breast tumor subtypes, race, and long-term survival in the Carolina Breast Cancer Study, *Clinical Cancer Research*. 2010; 16: 6100-6110.

Pettifor A, **O'Brien K**, MacPhail C, Miller W, and Rees, H. Early coital debut and associated risk factors among young women and men in South Africa, *International Perspectives on Sexual and Reproductive Health*. 2009; 35 (2): 82-90.

Li T, Christos PJ, Sparano JA, Hershman DL, Hoschander S, **O'Brien K**, Wright JJ, and Vahdat LT. Phase II trial of the farnesyltransferase inhibitor tipifarnib plus fulvestrant in hormone receptor-positive metastatic breast cancer: New York Cancer Consortium Trial P6205, *Annals of Oncology*. 2009; 20: 642-647.

Gorgun E, Remzi FH, Montague DK, Conner JT, **O'Brien K**, Laparo B, and Fazio VW. Male sexual function improves after ileal pouch anal anastomosis, *Colorectal Disease*. 2005; 7:545-550.

Forthcoming Manuscripts

* Shared first author, † Student under my supervision, § Shared last author

O'Brien KM, Whelan DR†, Sandler DP, Hall, JE and Weinberg CR. Young-onset eating disorders, reproductive outcomes, and breast cancer. *In review*.

O'Brien KM, Sandler DP, Taylor JA, Weinberg CR. Serum vitamin D and risk of breast cancer within five years. *In review*.

Gonzalez N†, **O'Brien KM**, Sandler DP§, and Weinberg CR§. Talc use, douching and risk of ovarian cancer. *In review*.

Shi M*, **O'Brien KM***, Sandler DP, Taylor J, Zaykin DV, and Weinberg CR. Previous GWAS hits in relation to young-onset breast cancer. *In review*.

Park YMM, White AJ, Nichols HB, **O'Brien KM**, Weinberg CR, and Sandler DP. The association between metabolic health, obese phenotype and the risk of breast cancer. *In preparation*.

O'Brien KM, Sandler DP, Taylor JA, Weinberg CR. Serum vitamin D, single nucleotide polymorphisms, and risk of breast cancer within five years. *In preparation*.

O'Brien KM, Sandler DP, Taylor JA, Weinberg CR. Serum vitamin D, DNA methylation, and risk of breast cancer within five years. *In preparation*.

Keil AP and **O'Brien KM**. Methods to control for time-dependent measurement error. *In preparation*.

Hooper LG, Young MT, Keller JP, Szpiro A, **O'Brien KM**, Sandler DP, Vedal S, Kaufman JD, London SJ. Ambient air pollution exposure and chronic bronchitis in a cohort of U.S. women. *In preparation*.

Honors and Awards

2011 Berton H. Kaplan Student Publication Award, Epidemiology Department

Fellowships, Grants, and Contracts

- February 2016 Submitted: “Vitamin D levels over time and the risk of breast cancer” to L’Oreal for Women in Science Fellowship (Principal Investigator)
- September 2015- September 2017 “The Role of Cadmium and Other Trace Elements in Young-onset Breast Cancer” National Institute of Environmental Health Sciences, Division of Intramural Research (Post-doctoral fellow, Principal Investigator: CR Weinberg)
- August 2014- August 2015 Received \$100,000 grant for “The Joint Effects of Vitamin D, Genetics, and Epigenetics in the Prevention of Breast Cancer” from the Office of Dietary Supplement Research Scholars Program (Principal Investigator)
- September 2011- April 2013 Recipient of NIH Cancer Education and Career Development Program Institutional Training Grant (5R25CA057726-19)
- August 2008- August 2011 Recipient of NIH National Research Service Award Institutional Training Grant for Cancer Epidemiology (5T32CA009330-30)

Professional Service

- NIEHS Trainees’ Assembly Steering Committee, Representative for the Biostatistics and Computational Biology Branch (May 2014-present)
- Reviewer for *The American Journal of Epidemiology*, *Epidemiology*, *Endocrine-related Cancer*, *International Journal of Molecular Sciences*, *Scientific Reports*, *PLoS One*, *International Journal of Environmental Research and Public Health*
- Society for Epidemiologic Research- Student and Post-Doc Committee, Membership and Nominations Committee Co-Chair (2009-2011); SER member since 2009
- International Genetic Epidemiology Society- Next Generation, Co-Founder and board member (2011-2013); IGES website administrator (2012-2013)

Invited Talks

- Vitamin D and Breast Cancer. Zilber School of Public Health, University of Wisconsin at Milwaukee, WI, January 2016.
- The Joint Effects of Vitamin D, Genetics, and Epigenetics in the Prevention of Breast Cancer. Office of Dietary Supplements Research Scholars Symposium, National Institutes of Health, Bethesda, MD, November 2015.
- Serum Vitamin D and Breast Cancer within Five Years. NIEHS Science Day, Research Triangle Park, NC, November 2015.
- Vitamin D and Breast Cancer. Department of Epidemiology, Geisel School of Medicine, Dartmouth College, Hanover, NH, October 2015.
- Vitamin D and Breast Cancer. University of Washington School of Public Health, Department of Epidemiology, Seattle, WA, September 2015.
- Breast cancer etiology: Moving from G to E to G by E. Division of Epidemiology, Department of Medicine, Vanderbilt University School of Medicine, Nashville, TN, July 2015.

Environmental biomarkers: Methods and applications. Epidemiology Branch, National Institute of Environmental Health Sciences, Research Triangle Park, NC, June 2015.

Environmental biomarkers: Methods and applications. Department of Epidemiology, Biostatistics and Occupational Health, McGill University, Montreal, Quebec, Canada, May 2015.

Environmental chemicals in urine and blood: Methods for creatinine and lipid adjustment. Biostatistics and Computational Biology Branch, National Institute of Environmental Health Sciences, Research Triangle Park, NC, April 2015.

Breast cancer etiology: Moving from G to E to G by E. Department of Epidemiology, University of California, Berkeley, CA, February 2015.

Breast cancer epidemiology: Heterogeneity by age, race, and genetic profile. Department of Epidemiology, Biostatistics and Preventive Medicine, University of New Mexico, Albuquerque, NM, August 2014.

Breast cancer subtypes and previously established genetic risk factors: A Bayesian approach. Society for Epidemiologic Research, Boston, MA, June 2013.

Race and subtype differences in the replication of previously identified breast cancer susceptibility loci: A Bayesian approach. Biostatistics Branch Seminar, National Institute of Environmental Health Sciences, October 2012.

Subtypes, race, and long-term survival in the Carolina Breast Cancer Study, Society for Epidemiologic Research, Seattle, WA, June 2010.

Poster Presentations

O'Brien KM, Upson K, Cook N, and Weinberg CR. Environmental chemicals in urine and blood: Methods for creatinine and lipid adjustment. Society for Epidemiologic Research, June 2015.

O'Brien KM, Whelan DR, Hall JE, Sandler DP and Weinberg CR. Young-onset eating disorders, reproductive outcomes, and breast cancer. Society for Epidemiologic Research, June 2015.

O'Brien KM, Upson K, Cook N, and Weinberg CR. Environmental chemicals in urine and blood: Methods for creatinine and lipid adjustment. NIEHS Science Day, November 2014.

O'Brien KM, Fei C, Sandler DP, Nichols HB, DeRoo LA, and Weinberg CR. Hormone therapy and young-onset breast cancer. Society for Epidemiologic Research, June 2014.

O'Brien KM, Sun J, Sandler DP, DeRoo LA, and Weinberg CR. Risk Factors for young-onset breast cancer. Society for Epidemiologic Research, June 2014.

O'Brien KM, Orlow I, Antonescu CR, Ballman K, McCall L, DeMatteo R and Engel LS. Gastrointestinal stromal tumors: linking single nucleotide polymorphisms and somatic mutations, Society for Epidemiologic Research, June 2013.

O'Brien KM, Cole SR, Engel LS, Bensen JT, Poole C, Herring AH and Millikan RC. Breast cancer subtypes and previously established genetic risk factors: A Bayesian approach, American Society of Preventive Oncology, March 2013.

O'Brien KM, Cole SR, Bensen, JT and Millikan RC. Race and subtype differences in the replication of previously identified breast cancer susceptibility loci, International Genetic Epidemiology Society, October 2012.

O'Brien KM, Orlow I, Antonescu CR, Ballman K, McCall L, DeMatteo R and Engel LS. Gastrointestinal stromal tumors, somatic mutations and candidate genetic risk factors, International Genetic Epidemiology Society, October 2012.

- O'Brien KM, Millikan RC and Cole SR. Bayesian approaches to identifying susceptibility loci: A simulation study, International Genetic Epidemiology Society, September 2011.
- O'Brien KM, Hawkins LK, and Millikan RC. The association between cooked meat and breast cancer in a racially diverse population, Society for Epidemiologic Research, June 2011.
- O'Brien KM, Cole SR, and Millikan RC. Subtypes, race, and long-term survival in the Carolina Breast Cancer Study, American Association for Cancer Research, April 2010.
- Ocean A, Schnoll-Sussman F, Chen X, Holloway S, Matthews N, O'Brien K, Christos P, Mazumdar M, Wright J, Wadler S. Phase II study of PS-341 (VELCADE, bortezomib) with or without irinotecan in patients with advanced gastric adenocarcinomas (AGA), American Society for Clinical Oncology- Gastrointestinal Cancers Symposium, January 2007.
- Ocean A, Ruggiero J, O'Brien K, Lee J, Holloway, S, Christos P, Kung TS, Kaubisch A, Chen H, Wadler, S. FOLFOX6 plus bevacizumab and cetuximab for metastatic colorectal cancer: New York Cancer Consortium Trial P6490, American Society for Clinical Oncology, June 2007.
- Li T, Christos P, Sparano J, Hershman D, Hoschander S, O'Brien K, Wright J, Vahdat L. Phase II study of the farnesyltransferase inhibitor tipifarnib plus fulvestrant in postmenopausal patients with hormone receptor-positive metastatic breast cancer: New York Cancer Consortium Trial P6205, American Society of Clinical Oncology, June 2007.

Non-work Special Interests

Swam competitively for four years at Williams College. 2005 recipient of Robert B. Muir Women's Swimming Trophy for leadership, sportsmanship and performance. More recent athletic activities include open water swimming events and triathlons.