

CURRICULUM VITAE

LAWRENCE S. ENGEL, PhD

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PERSONAL

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EDUCATION

1999 Ph.D., Epidemiology, University of Washington, Seattle, WA

1996 M.S., Epidemiology, University of Washington, Seattle, WA

1986 B.S., Genetics, University of California, Berkeley, CA

PROFESSIONAL EXPERIENCE

2021-present Director, Program in Occupational Epidemiology, North Carolina Occupational Safety and Health Education and Research Center

2020-present Program Leader, Environmental and Occupational Epidemiology, Department of Epidemiology, Gillings School of Global Public Health, University of North Carolina at Chapel Hill, NC

2011-present Associate Professor, Department of Epidemiology, Gillings School of Global Public Health, University of North Carolina at Chapel Hill, NC

2010-present Associate Scientist; Epidemiology Branch, National Institute of Environmental Health Sciences, Research Triangle Park, NC

2009-2011 Associate Attending Epidemiologist, Department of Epidemiology and Biostatistics, Memorial Hospital, New York, NY

2009-2011 Associate Member, Memorial Sloan-Kettering Cancer Center, New York, NY

- 2003-2009 Assistant Attending Epidemiologist, Department of Epidemiology and Biostatistics, Memorial Hospital, New York, NY
- 2003-2009 Assistant Member, Memorial Sloan-Kettering Cancer Center, New York, NY
- 1999-2003 Postdoctoral Fellow, Occupational and Environmental Epidemiology Branch, Division of Cancer Epidemiology and Genetics, National Cancer Institute, Rockville, MD
- 1994-1996 Co-Instructor (Research Methods), Northwest Institute of Acupuncture and Oriental Medicine (NIAOM), Seattle, WA

Other Employment

- 1989-1993 Senior Programmer/Analyst and Project Leader, Shared Medical Systems, Inc. (SMS), Oakland, CA
- 1991-1992 Instructor, Arrowsmith Academy, Berkeley, CA
- 1987-1988 Senior Programmer, Innovative Interfaces, Inc., Berkeley, CA
- 1982-1987 Computer Programmer, Sterling Software, Inc., Ames Research Center, Mountain View, CA
- 1981-1982 Computer Programmer, Lexidata Corp., Billerica, MA
- 1980 Computer Programmer, Conceptual Designs Software Corp., Framingham, MA

HONORS

- 2011 NIH Director's Award for the Gulf Long-term Follow-up Study (GuLF STUDY)
- 2010 National Institutes of Health Merit Award
- 2006 American Cancer Society Research Scholar
- 2004 Outstanding Poster Award, Society for Epidemiologic Research Annual Meeting, Salt Lake City, UT
- 2001 National Cancer Institute Fellowship Achievement Award

2001	National Cancer Institute Technology Transfer Award
1994-1998	National Institute of Environmental Health Sciences Predoctoral Fellowship
1982-1986	McDonald Scholarship, Kraft Scholarship, Wrass Scholarship, UC Berkeley Scholarship, University of California, Berkeley
1980	National Merit Scholarship Finalist

MEMBERSHIPS

2013-present	Lineberger Comprehensive Cancer Center, University of North Carolina
2012-present	Center for Environmental Health and Susceptibility, University of North Carolina
2002-present	International Society for Environmental Epidemiology
2002-present	Molecular Epidemiology Group (MEG/AACR)
2000-present	American Association for Cancer Research

PUBLICATIONS

Peer-Reviewed Articles (* = student's/fellow's work for which L Engel was primary mentor; # = co-first author)

In Press

1. *Quist AJL, Fliss M, Wade TJ, Delamater PL, Richardson DB, **Engel LS**. Hurricane Flooding and Acute Gastrointestinal Illness in North Carolina. Environmental Health Perspectives. Submitted pages: 36.
2. Denic-Roberts H, Rowley N, Haigney MC, Christenbury K, Barrett J, Thomas DL, **Engel LS**, Rusiecki JA. Acute and longer-term cardiovascular conditions in the Deepwater Horizon Oil Spill Coast Guard Cohort. Environment International. Submitted pages: 34.

In Print

1. Xu J, **Engel LS**, Rhoden J, Jackson WB, 2nd, Kwok RK, Sandler DP. The association between blood metals and hypertension in the GuLF study. Environ Res 2021;202:111734.
2. Werder EJ, **Engel LS**, Lawrence KG, Sandler DP. Ambient particulate matter, ozone, and neurologic symptoms in U.S. Gulf states adults. Environ Epidemiol 2021;5(4):e160. PMID:PMC8367062

3. Stewart PA, Gorman Ng M, Cherrie JW, Jones A, Kwok RK, Blair A, **Engel LS**, Sandler DP, Stenzel MR. Estimation of Dermal Exposure to Oil Spill Response and Clean-up Workers after the Deepwater Horizon Disaster. *Ann Work Expo Health* 2021.
4. Stenzel MR, Groth CP, Banerjee S, Ramachandran G, Kwok RK, **Engel LS**, Sandler DP, Stewart PA. Exposure Assessment Techniques Applied to the Highly Censored Deepwater Horizon Gulf Oil Spill Personal Measurements. *Ann Work Expo Health* 2021.
5. Stenzel MR, Arnold SF, Ramachandran G, Kwok RK, **Engel LS**, Sandler DP, Stewart PA. Estimation of Airborne Vapor Concentrations of Oil Dispersants COREXIT™ EC9527A and EC9500A, Volatile Components Associated with the Deepwater Horizon Oil Spill Response and Clean-up Operations. *Ann Work Expo Health* 2021.
6. Stallard MA, Mulhern R, Greenwood E, Franklin T, **Engel LS**, Fisher MB, Sobsey MD, Zani H, Noble RT, Stewart JR, Sozzi E. Occurrence of male-specific and somatic coliphages and relationship with rainfall in privately-owned wells from peri-urban and rural households. *Water Res X* 2021;12:100102. PMID:PMC8131969
7. Rusiecki JA, Denic-Roberts H, Thomas DL, Collen J, Barrett J, Christenbury K, **Engel LS**. Incidence of chronic respiratory conditions among oil spill responders: Five years of follow-up in the deepwater horizon oil spill Coast Guard Cohort study. *Environ Res* 2021:111824.
8. Ramachandran G, Groth CP, Huynh TB, Banerjee S, Stewart PA, **Engel LS**, Kwok RK, Sandler DP, Stenzel M. Using Real-Time Area VOC Measurements to Estimate Total Hydrocarbons Exposures to Workers Involved in the Deepwater Horizon Oil Spill. *Ann Work Expo Health* 2021.
9. Parada H, Jr., Benmarhnia T, **Engel LS**, Sun X, Tse CK, Hoh E, Olshan AF, Troester MA. A Congener-specific and Mixture Analysis of Plasma Polychlorinated Biphenyl Levels and Incident Breast Cancer. *Epidemiology* 2021;32(4):499-507. PMID:PMC8159846
10. Lawrence KG, Werder EJ, Kwok RK, **Engel LS**, Sandler DP. Mental health indicators and lung function following a large oil spill. *Eur Respir J* 2021.
11. Lawrence KG, Jackson WB, 2nd, Ramsey S, Kwok RK, **Engel LS**, Curry MD, Sandler DP. Spirometry quality predictors in a large multistate prospective study. *Respir Med* 2021;188:106618.
12. Huynh TB, Groth CP, Ramachandran G, Banerjee S, Stenzel M, Blair A, Sandler DP, **Engel LS**, Kwok RK, Stewart PA. Estimates of Inhalation Exposures among Land Workers during the Deepwater Horizon Oil Spill Clean-up Operations. *Ann Work Expo Health* 2021.
13. Huynh TB, Groth CP, Ramachandran G, Banerjee S, Stenzel M, Blair A, Sandler DP, **Engel LS**, Kwok RK, Stewart PA. Estimates of Inhalation Exposures to Oil-Related Components on the Supporting Vessels During the Deepwater Horizon Oil Spill. *Ann Work Expo Health* 2021.
14. Hu MD, Lawrence KG, Gall M, Emrich CT, Bodkin MR, Jackson WB, 2nd, MacNeill N, Kwok RK, **Engel LS**, Sandler DP. Natural hazards and mental health among US Gulf Coast residents. *J Expo Sci Environ Epidemiol* 2021;31(5):842-51. PMID:PMC8371064
15. Hu MD, Lawrence KG, Bodkin MR, Kwok RK, **Engel LS**, Sandler DP. Neighborhood Deprivation, Obesity, and Diabetes in Residents of the US Gulf Coast. *Am J Epidemiol* 2021;190(2):295-304. PMID:PMC7850038
16. Groth CP, Huynh TB, Banerjee S, Ramachandran G, Stewart PA, Quick H, Sandler DP, Blair A, **Engel LS**, Kwok RK, Stenzel MR. Linear Relationships Between Total

- Hydrocarbons and Benzene, Toluene, Ethylbenzene, Xylene, and n-Hexane during the Deepwater Horizon Response and Clean-up. *Ann Work Expo Health* 2021.
17. Groth CP, Banerjee S, Ramachandran G, Stewart PA, Sandler DP, Blair A, **Engel LS**, Kwok RK, Stenzel MR. Methods for the Analysis of 26 Million VOC Area Measurements during the Deepwater Horizon Oil Spill Clean-up. *Ann Work Expo Health* 2021.
 18. Zaganjor I, Luben TJ, Desrosiers TA, Keil AP, **Engel LS**, Michalski AM, Carmichael SL, Nembhard WN, Shaw GM, Reefhuis J, Yazdy MM, Langlois PH, Feldkamp ML, Romitti PA, Olshan AF, The National Birth Defects Prevention S. Maternal Exposure to Disinfection By-Products and Risk of Hypospadias in the National Birth Defects Prevention Study (2000-2005). *Int J Environ Res Public Health* 2020;17(24). PMID:PMC7766973
 19. Werder EJ, **Engel LS**, Curry MD, Sandler DP. Selenium modifies associations between multiple metals and neurologic symptoms in Gulf states residents. *Environ Epidemiol* 2020;4(6):e115. PMID:PMC7727467
 20. Werder EJ, Beier JI, Sandler DP, Falkner KC, Gripshover T, Wahlang B, **Engel LS**, Cave MC. Blood BTEXS and heavy metal levels are associated with liver injury and systemic inflammation in Gulf states residents. *Food Chem Toxicol* 2020;139:111242. PMID:PMC7368391
 21. Sandifer P, Knapp L, Lichtveld M, Manley R, Abramson D, Caffey R, Cochran D, Collier T, Ebi K, **Engel L**, Farrington J, Finucane M, Hale C, Halpern D, Harville E, Hart L, Hswen Y, Kirkpatrick B, McEwen B, Morris G, Orbach R, Palinkas L, Partyka M, Porter D, Prather AA, Rowles T, Scott G, Seeman T, Solo-Gabriele H, Svendsen E, Tincher T, Trtanj J, Walker AH, Yehuda R, Yip F, Yoskowitz D, Singer B. Framework for a Community Health Observing System for the Gulf of Mexico Region: Preparing for Future Disasters. *Front Public Health* 2020;8:578463. PMID:PMC7593336
 22. Pratt GC, Stenzel MR, Kwok RK, Groth CP, Banerjee S, Arnold SF, **Engel LS**, Sandler DP, Stewart PA. Modeled Air Pollution from In Situ Burning and Flaring of Oil and Gas Released Following the Deepwater Horizon Disaster. *Ann Work Expo Health* 2020.
 23. Porta M, Pumarega J, Amaral AFS, Genkinger JM, Camargo J, Mucci L, Alguacil J, Gasull M, Zhang X, Morales E, Iglesias M, Ogino S, **Engel LS**. Influence of KRAS mutations, persistent organic pollutants, and trace elements on survival from pancreatic ductal adenocarcinoma. *Environ Res* 2020;190:109781. PMID:PMC7689512
 24. Petrick JL, Florio AA, Zhang X, Zeleniuch-Jacquotte A, Wactawski-Wende J, Van Den Eeden SK, Stanczyk FZ, Simon TG, Sinha R, Sesso HD, Schairer C, Rosenberg L, Rohan TE, Purdue MP, Palmer JR, Linet MS, Liao LM, Lee IM, Koshiol J, Kitahara CM, Kirsh VA, Hofmann JN, Guillemette C, Graubard BI, Giovannucci E, Gaziano JM, Gapster SM, Freedman ND, **Engel LS**, Chong DQ, Chen Y, Chan AT, Caron P, Buring JE, Bradwin G, Beane Freeman LE, Campbell PT, McGlynn KA. Associations Between Prediagnostic Concentrations of Circulating Sex Steroid Hormones and Liver Cancer Among Postmenopausal Women. *Hepatology* 2020;72(2):535-47. PMID:PMC7391790
 25. Parada H, Jr., Sun X, Tse CK, **Engel LS**, Hoh E, Olshan AF, Troester MA. Plasma levels of polychlorinated biphenyls (PCBs) and breast cancer mortality: The Carolina Breast Cancer Study. *Int J Hyg Environ Health* 2020;227:113522. PMID:PMC7387141
 26. Lodge EK, **Engel LS**, Ferrando-Martínez S, Wildman D, Uddin M, Galea S, Aiello AE. The association between residential proximity to brownfield sites and high-traffic areas and

- measures of immunity. *J Expo Sci Environ Epidemiol* 2020;30(5):824-34. PMID:PMC7483819
27. Lawrence KG, Keil AP, Garantziotis S, Umbach DM, Stewart PA, Stenzel MR, McGrath JA, Jackson WB, Kwok RK, Curry MD, **Engel LS**, Sandler DP. Lung function in oil spill responders 4-6 years after the Deepwater Horizon disaster. *J Toxicol Environ Health A* 2020;83(6):233-48. PMID:PMC7837370
 28. Huynh TB, Groth CP, Ramachandran G, Banerjee S, Stenzel M, Quick H, Blair A, **Engel LS**, Kwok RK, Sandler DP, Stewart PA. Estimates of Occupational Inhalation Exposures to Six Oil-Related Compounds on the Four Rig Vessels Responding to the Deepwater Horizon Oil Spill. *Ann Work Expo Health* 2020.
 29. Bassig BA, Shu XO, Sjödin A, Koh WP, Gao YT, Adams-Haduch J, Davis M, Wang R, Xiang YB, **Engel LS**, Purdue MP, Ji BT, Yang G, Jones RS, Langseth H, Hosgood HD, Grimsrud TK, Seow WJ, Wong JYY, Hu W, Chen D, Zheng W, Yuan JM, Lan Q, Rothman N. Prediagnostic blood levels of organochlorines and risk of non-Hodgkin lymphoma in three prospective cohorts in China and Singapore. *Int J Cancer* 2020;146(3):839-49. PMID:PMC8244652
 30. *Werder EJ, **Engel LS**, Satagopan J, Blair A, Koutros S, Lerro CC, Alavanja MC, Sandler DP, Beane Freeman LE. Herbicide, fumigant, and fungicide use and breast cancer risk among farmers' wives. *Environ Epidemiol* 2020;4(3):e097. PMID:PMC7289136
 31. *Niehoff NM, Zabor EC, Satagopan J, Widell A, O'Brien TR, Zhang M, Rothman N, Grimsrud TK, Van Den Eeden SK, **Engel LS**. Prediagnostic serum polychlorinated biphenyl concentrations and primary liver cancer: A case-control study nested within two prospective cohorts. *Environ Res* 2020;187:109690. PMID:PMC7317661
 32. *Chen D, Grimsrud TK, Langseth H, Barr DB, Bassig BA, Blair A, Cantor KP, Gammon MD, Lan Q, Rothman N, **Engel LS**. Prediagnostic serum concentrations of organochlorine pesticides and non-Hodgkin lymphoma: A nested case-control study in the Norwegian Janus Serum Bank Cohort. *Environ Res* 2020;187:109515.
 33. Werder EJ, **Engel LS**, Blair A, Kwok RK, McGrath JA, Sandler DP. Blood BTEX levels and neurologic symptoms in Gulf states residents. *Environ Res* 2019;175:100-7. PMID:PMC6571161
 34. Parada H, Jr., Sun X, Tse CK, **Engel LS**, Olshan AF, Troester MA. Plasma levels of dichlorodiphenyldichloroethene (DDE) and dichlorodiphenyltrichloroethane (DDT) and survival following breast cancer in the Carolina Breast Cancer Study. *Environ Int* 2019;125:161-71. PMID:PMC6448589
 35. Niehoff NM, Gammon MD, Keil AP, Nichols HB, **Engel LS**, Taylor JA, White AJ, Sandler DP. Hazardous air pollutants and telomere length in the Sister Study. *Environ Epidemiol* 2019;3(4). PMID:PMC7517667
 36. Niehoff NM, Gammon MD, Keil AP, Nichols HB, **Engel LS**, Sandler DP, White AJ. Airborne mammary carcinogens and breast cancer risk in the Sister Study. *Environ Int* 2019;130:104897. PMID:PMC6679994
 37. Nethery RC, Sandler DP, Zhao S, **Engel LS**, Kwok RK. A joint spatial factor analysis model to accommodate data from misaligned areal units with application to Louisiana social vulnerability. *Biostatistics* 2019;20(3):468-84. PMID:PMC6659171
 38. Lowe SR, McGrath JA, Young MN, Kwok RK, **Engel LS**, Galea S, Sandler DP. Cumulative Disaster Exposure and Mental and Physical Health Symptoms Among a Large

- Sample of Gulf Coast Residents. *J Trauma Stress* 2019;32(2):196-205.
PMCID:PMC6476642
39. Lin CJ, Richardson DB, Hilborn ED, Weinberg H, **Engel LS**, Wade TJ. Emergency Department Visits for Acute Gastrointestinal Illness After a Major Water Pipe Break in 2010. *Epidemiology* 2019;30(6):893-900.
 40. Kwok RK, Miller AK, Gam KB, Curry MD, Ramsey SK, Blair A, **Engel LS**, Sandler DP. Developing Large-Scale Research in Response to an Oil Spill Disaster: a Case Study. *Curr Environ Health Rep* 2019;6(3):174-87. PMCID:PMC6699641
 41. Krishnamurthy J, **Engel LS**, Wang L, Schwartz EG, Christenbury K, Kondrup B, Barrett J, Rusiecki JA. Neurological symptoms associated with oil spill response exposures: Results from the Deepwater Horizon Oil Spill Coast Guard Cohort Study. *Environ Int* 2019;131:104963. PMCID:PMC6786260
 42. Gorman Ng M, Cherrie JW, Sleuwenhoek A, Stenzel M, Kwok RK, **Engel LS**, Cavallari JM, Blair A, Sandler DP, Stewart P. GuLF DREAM: A Model to Estimate Dermal Exposure Among Oil Spill Response and Clean-up Workers. *Ann Work Expo Health* 2019.
 43. Erickson EA, **Engel LS**, Christenbury K, Weems L, Schwartz EG, Rusiecki JA. Environmental Heat Exposure and Heat-Related Symptoms in United States Coast Guard Deepwater Horizon Disaster Responders. *Disaster Med Public Health Prep* 2019;13(3):561-9. PMCID:PMC6762031
 44. **Engel LS**, Zabor EC, Satagopan J, Widell A, Rothman N, O'Brien TR, Zhang M, Van Den Eeden SK, Grimsrud TK. Prediagnostic serum organochlorine insecticide concentrations and primary liver cancer: A case-control study nested within two prospective cohorts. *Int J Cancer* 2019;145(9):2360-71. PMCID:PMC6667305
 45. Bassig BA, **Engel LS**, Langseth H, Grimsrud TK, Cantor KP, Vermeulen R, Purdue MP, Barr DB, Wong JYY, Blair A, Rothman N, Lan Q. Pre-diagnostic serum concentrations of organochlorines and risk of acute myeloid leukemia: A nested case-control study in the Norwegian Janus Serum Bank Cohort. *Environ Int* 2019;125:229-35.
 46. *Werder EJ, Sandler DP, Richardson DB, Emch ME, Kwok RK, Gerr FE, **Engel LS**. Environmental Styrene Exposure and Sensory and Motor Function in Gulf Coast Residents. *Environ Health Perspect* 2019;127(4):47006. PMCID:PMC6785236
 47. *Werder EJ, Sandler DP, Richardson DB, Emch ME, Kwok RK, **Engel LS**. Determinants of environmental styrene exposure in Gulf coast residents. *J Expo Sci Environ Epidemiol* 2019;29(6):831-41. PMCID:PMC6763388
 48. *Strelitz J, Sandler DP, Keil AP, Richardson DB, Heiss G, Gammon MD, Kwok RK, Stewart PA, Stenzel MR, **Engel LS**. Exposure to Total Hydrocarbons During Cleanup of the Deepwater Horizon Oil Spill and Risk of Heart Attack Across 5 Years of Follow-up. *Am J Epidemiol* 2019;188(5):917-27. PMCID:PMC6494668
 49. *Strelitz J, Keil AP, Richardson DB, Heiss G, Gammon MD, Kwok RK, Sandler DP, **Engel LS**. Self-reported myocardial infarction and fatal coronary heart disease among oil spill workers and community members 5 years after Deepwater Horizon. *Environ Res* 2019;168:70-9. PMCID:PMC6263782
 50. *Quist AJL, Rohlman DS, Kwok RK, Stewart PA, Stenzel MR, Blair A, Miller AK, Curry MD, Sandler DP, **Engel LS**. Deepwater Horizon oil spill exposures and neurobehavioral function in GuLF study participants. *Environ Res* 2019;179(Pt B):108834. PMCID:PMC6878206

51. Werder EJ, Gam KB, **Engel LS**, Kwok RK, Ekenga CC, Curry MD, Chambers DM, Blair A, Miller AK, Birnbaum LS, Sandler DP. Predictors of blood volatile organic compound levels in Gulf coast residents. *J Expo Sci Environ Epidemiol* 2018;28(4):358-70. PMID:PMC6013310
52. Taylor KW, Troester MA, Herring AH, **Engel LS**, Nichols HB, Sandler DP, Baird DD. Associations between Personal Care Product Use Patterns and Breast Cancer Risk among White and Black Women in the Sister Study. *Environ Health Perspect* 2018;126(2):027011. PMID:PMC6066348
53. Stewart PA, Stenzel MR, Ramachandran G, Banerjee S, Huynh TB, Groth CP, Kwok RK, Blair A, **Engel LS**, Sandler DP. Development of a total hydrocarbon ordinal job-exposure matrix for workers responding to the Deepwater Horizon disaster: The GuLF STUDY. *J Expo Sci Environ Epidemiol* 2018;28(3):223-30. PMID:PMC6104396
54. Rusiecki J, Alexander M, Schwartz EG, Wang L, Weems L, Barrett J, Christenbury K, Johndrow D, Funk RH, **Engel LS**. The Deepwater Horizon Oil Spill Coast Guard Cohort study. *Occup Environ Med* 2018;75(3):165-75. PMID:PMC6526931
55. Lerro CC, Jones RR, Langseth H, Grimsrud TK, **Engel LS**, Sjödin A, Choo-Wosoba H, Albert P, Ward MH. A nested case-control study of polychlorinated biphenyls, organochlorine pesticides, and thyroid cancer in the Janus Serum Bank cohort. *Environ Res* 2018;165:125-32. PMID:PMC5999553
56. Gam KB, Kwok RK, **Engel LS**, Curry MD, Stewart PA, Stenzel MR, McGrath JA, Jackson WB, 2nd, Jensen RL, Lichtveld MY, Miller AK, Sandler DP. Exposure to Oil Spill Chemicals and Lung Function in Deepwater Horizon Disaster Response Workers. *J Occup Environ Med* 2018;60(6):e312-e8. PMID:PMC5995629
57. Gam KB, Kwok RK, **Engel LS**, Curry MD, Stewart PA, Stenzel MR, McGrath JA, Jackson WB, 2nd, Jensen RL, Keil AP, Lichtveld MY, Miller AK, Sandler DP. Lung Function in Oil Spill Response Workers 1-3 Years After the Deepwater Horizon Disaster. *Epidemiology* 2018;29(3):315-22. PMID:PMC5882518
58. Gam KB, **Engel LS**, Kwok RK, Curry MD, Stewart PA, Stenzel MR, McGrath JA, Jackson WB, 2nd, Lichtveld MY, Sandler DP. Association between Deepwater Horizon oil spill response and cleanup work experiences and lung function. *Environ Int* 2018;121(Pt 1):695-702. PMID:PMC6400458
59. Furlong M, Herring AH, Goldman BD, Daniels JL, Wolff MS, **Engel LS**, Engel SM. Early Life Characteristics and Neurodevelopmental Phenotypes in the Mount Sinai Children's Environmental Health Center. *Child Psychiatry Hum Dev* 2018;49(4):534-50. PMID:PMC6432778
60. Alford SH, Divine G, Chao C, Habel LA, Janakiraman N, Wang Y, Feigelson HS, Scholes D, Roblin D, Epstein MM, **Engel L**, Havstad S, Wells K, Yood MU, Fortuny J, Johnson CC. Serum cholesterol trajectories in the 10 years prior to lymphoma diagnosis. *Cancer Causes Control* 2018;29(1):143-56. PMID:PMC5864123
61. Alexander M, **Engel LS**, Olaiya N, Wang L, Barrett J, Weems L, Schwartz EG, Rusiecki JA. The deepwater horizon oil spill coast guard cohort study: A cross-sectional study of acute respiratory health symptoms. *Environ Res* 2018;162:196-202. PMID:PMC5811337
62. *Werder EJ, **Engel LS**, Richardson DB, Emch ME, Gerr FE, Kwok RK, Sandler DP. Environmental styrene exposure and neurologic symptoms in U.S. Gulf coast residents. *Environ Int* 2018;121(Pt 1):480-90. PMID:PMC6712572

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64. Taylor KW, Baird DD, Herring AH, **Engel LS**, Nichols HB, Sandler DP, Troester MA. Associations among personal care product use patterns and exogenous hormone use in the NIEHS Sister Study. *J Expo Sci Environ Epidemiol* 2017;27(5):458-64. PMID:PMC5526738
65. Parada H, Jr., Steck SE, Bradshaw PT, **Engel LS**, Conway K, Teitelbaum SL, Neugut AI, Santella RM, Gammon MD. Grilled, Barbecued, and Smoked Meat Intake and Survival Following Breast Cancer. *J Natl Cancer Inst* 2017;109(6). PMID:PMC5214623
66. Parada H, Jr., Bradshaw PT, Steck SE, **Engel LS**, Conway K, Teitelbaum SL, Neugut AI, Santella RM, Gammon MD. Postdiagnosis Changes in Cigarette Smoking and Survival Following Breast Cancer. *JNCI Cancer Spectr* 2017;1(1). PMID:PMC5875926
67. Parada H, Jr., Bradshaw PT, **Engel LS**, Conway K, Steck SE, Teitelbaum SL, Neugut AI, Santella RM, Gammon MD. Environmental Tobacco Smoke Exposure and Survival Following Breast Cancer. *Cancer Epidemiol Biomarkers Prev* 2017;26(2):278-80. PMID:PMC5296216
68. McGowan CJ, Kwok RK, **Engel LS**, Stenzel MR, Stewart PA, Sandler DP. Respiratory, Dermal, and Eye Irritation Symptoms Associated with Corexit™ EC9527A/EC9500A following the Deepwater Horizon Oil Spill: Findings from the GuLF STUDY. *Environ Health Perspect* 2017;125(9):097015. PMID:PMC5915187
69. Li N, Petrick JL, Steck SE, Bradshaw PT, McClain KM, Niehoff NM, **Engel LS**, Shaheen NJ, Risch HA, Vaughan TL, Wu AH, Gammon MD. A pooled analysis of dietary sugar/carbohydrate intake and esophageal and gastric cardia adenocarcinoma incidence and survival in the USA. *Int J Epidemiol* 2017;46(6):1836-46. PMID:PMC5837717
70. Li N, Petrick JL, Steck SE, Bradshaw PT, McClain KM, Niehoff NM, **Engel LS**, Shaheen NJ, Corley DA, Vaughan TL, Gammon MD. Dietary sugar/starches intake and Barrett's esophagus: a pooled analysis. *Eur J Epidemiol* 2017;32(11):1007-17. PMID:PMC6331010
71. Kwok RK, McGrath JA, Lowe SR, **Engel LS**, Jackson WBN, Curry MD, Payne J, Galea S, Sandler DP. Mental health indicators associated with oil spill response and clean-up: cross-sectional analysis of the GuLF STUDY cohort. *Lancet Public Health* 2017;2(12):e560-e7. PMID:PMC6051348
72. Groth C, Banerjee S, Ramachandran G, Stenzel MR, Sandler DP, Blair A, **Engel LS**, Kwok RK, Stewart PA. Bivariate Left-Censored Bayesian Model for Predicting Exposure: Preliminary Analysis of Worker Exposure during the Deepwater Horizon Oil Spill. *Ann Work Expo Health* 2017;61(1):76-86. PMID:PMC6363054
73. Furlong MA, Herring A, Buckley JP, Goldman BD, Daniels JL, **Engel LS**, Wolff MS, Chen J, Wetmur J, Barr DB, Engel SM. Prenatal exposure to organophosphorus pesticides and childhood neurodevelopmental phenotypes. *Environ Res* 2017;158:737-47. PMID:PMC5577985
74. Epstein MM, Divine G, Chao CR, Wells KE, Feigelson HS, Scholes D, Roblin D, Ulcickas Yood M, **Engel LS**, Taylor A, Fortuny J, Habel LA, Johnson CC. Statin use and risk of multiple myeloma: An analysis from the cancer research network. *Int J Cancer* 2017;141(3):480-7. PMID:PMC5508532

75. **Engel LS**, Werder E, Satagopan J, Blair A, Hoppin JA, Koutros S, Lerro CC, Sandler DP, Alavanja MC, Beane Freeman LE. Insecticide Use and Breast Cancer Risk among Farmers' Wives in the Agricultural Health Study. *Environ Health Perspect* 2017;125(9):097002. PMID:PMC5915194
76. *Doherty BT, Kwok RK, Curry MD, Ekenga C, Chambers D, Sandler DP, **Engel LS**. Associations between blood BTEXS concentrations and hematologic parameters among adult residents of the U.S. Gulf States. *Environ Res* 2017;156:579-87. PMID:PMC5687063
77. *Beard JD, **Engel LS**, Richardson DB, Gammon MD, Baird C, Umbach DM, Allen KD, Stanwyck CL, Keller J, Sandler DP, Schmidt S, Kamel F. Military service, deployments, and exposures in relation to amyotrophic lateral sclerosis survival. *PLoS One* 2017;12(10):e0185751. PMID:PMC5634564
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Submitted

1. *Choi GH, Sandler DP, Kwok RK, Miller AK, Blair A, **Engel LS**. Blood styrene concentration and neurobehavioral measures among Gulf state residents. 2021. *Environmental Research*. Submitted pages: 21.
2. Zaganjor I, Keil AP, Luben TJ, Desrosiers TA, **Engel LS**, Reefhuis J, Michalski AM, Langlois PH, Olshan AF, The National Birth Defects Prevention Study Is maternal employment a source of exposure misclassification in studies of environmental exposures and birth outcomes? An example of drinking water contaminants and birth defects. *Environmental Epidemiology*. Submitted pages: 15.
3. Gribble MO, Keshav T, Denic-Roberts H, **Engel LS**, Rusiecki JA. Exposure patterns among Coast Guard responders to the Deepwater Horizon Oil Spill: A latent class analysis. *Environmental Research*. Submitted pages: 32.
4. *Jardel HV, **Engel LS**, Lawrence KG, Stewart PA, Stenzel MR, Curry MD, Kwok RK, Sandler DP. The association between oil spill cleanup-related total hydrocarbon exposure and diabetes. *International Journal of Epidemiology*. Submitted pages: 21.
5. *Chen D, Lawrence KG, Pratt GC, Stenzel MR, Stewart PA, Groth, CP, Banerjee S, Christenbury K, Curry MD, Jackson WB, Kwok RK, Blair A, **Engel LS**, Sandler DP. Fine Particulate Matter and Lung Function among Burning-exposed Deepwater Horizon Oil Spill Workers. *Environmental Health Perspectives*. Submitted pages: 35.
6. Stallard M, Mulhern R, Kim JS, DeYonke K, **Engel LS**, Fisher MB, Sobsey MD, Stewart JR, Christenson-Diver E, Sozzi E. Prevalence of cefotaxime- and multidrug-resistant Gram-negative bacteria isolated in unregulated private wells from peri-urban and rural communities. *Science of the Total Environment*. Submitted pages: 27.
7. McClain KM, Petrick JL, Li N, Niehoff NM, Steck SE, Bradshaw PT, **Engel LS**, Olshan AF, Shaheen NJ, Cook MB, Corley DA, Vaughan TL, Gammon MD. Association of Fish and Other Measures of Polyunsaturated Fatty Acids with Barrett's Esophagus. *European Journal of Epidemiology*. Submitted pages: 29.
8. Stenzel MR, Groth CP, Huynh TB, Ramachandran G, Banerjee S, Kwok RK, **Engel LS**, Blair A, Sandler DP, Stewart PA. Exposure Group Development in support of the NIEHS GuLF STUDY. *Annals of Work Exposures and Health*. Submitted pages: 20.

9. Stewart PA, Groth CP, Huynh TB, Gorman Ng M, Pratt GC, Arnold SF, Ramachandran G, Banerjee S, Cherrie JW, Christenbury K, Kwok RK, Blair A, **Engel LS**, Sandler DP, Stenzel MR. Assessing Exposures from the Deepwater Horizon Oil Spill Response and Clean-up. *Annals of Work Exposures and Health*. Submitted pages: 29.
10. Wang JH, Denic-Roberts H, Goodie JL, Thomas DL **Engel LS**, Rusiecki JA. Risk factors for acute mental health symptoms and tobacco initiation in Coast Guard Responders to the Deep Water Horizon Oil Spill. *Journal of Environmental Psychology*. Submitted pages: 39.
11. Kwok RK, Jackson WB, Curry MD, Stewart PA, McGrath JA, Stenzel M, Huynh TB, Groth CP, Ramachandran G, Banerjee S, Pratt GC, Miller AK, Zhang X, **Engel LS**, Sandler DP. Hypertension associated with oil spill response and clean-up work following the Deepwater Horizon disaster: Results from the GuLF Study. *JAMA Network Open*. Submitted pages: 34.
12. Barua VB, Juel MAI, Blackwood AD, Clerkin T, Ciesielski M, Sorinolu AJ, Holcomb DA, Young I, Kimble G, Sypolt S, **Engel LS**, Noble RT, Munir M. Tracking the temporal variation of COVID-19 surges through wastewater-based epidemiology during the peak of the pandemic: a six-month long study in Charlotte, North Carolina. *Sci Total Environ*. Submitted pages: 36.

Editorials, letters, and other publications

1. **Engel LS**, Graves N, Gray K. Enhancing Community Capacity: Understanding and Mapping Community Environmental Health Impacts of Hurricane Matthew: Preliminary Report; 2017. Available at: <https://sph.unc.edu/files/2017/12/Hurricane-Matthew-EH-hazards-preliminary-report-20170915-final.pdf>.
2. Savitz DA, **Engel LS**. Lessons for study of the health effects of oil spills. *Ann Intern Med* 2010;153(8):540-1.
3. Kamel F, Gladen BC, Hoppin JA, Sandler DP, **Engel LS**, Alavanja MCR. Pesticides and neurologic symptoms: Kamel et al. respond. *Environ Health Perspect* 2005;113(12):A800+.

Presentations

- 2019 Keynote speaker, “Disasters and Health Equity”, Council of State and Territorial Epidemiologists (CSTE) Annual Conference, Raleigh, NC
- 2019 Invited speaker, “Serum organochlorine insecticide concentrations and primary liver cancer: a nested case-control study”, University of North Carolina Cancer Epidemiology Seminar series, Chapel Hill, NC
- 2018 Invited speaker, “Lessons learned from the Coast Guard and NIEHS GuLF Cohort studies about the DWH oil spill”, GoMRI Synthesis Workshop: Development of an Operational Community Health Observing System for the Gulf of Mexico States, Washington, DC
- 2018 Keynote speaker, “Design and Early Findings of the Gulf Long-term Follow-up Study”, German Society for Epidemiology 13th Conference, Bremen, Germany

- 2018 Invited speaker, “Environmental health implications of Hurricane Matthew”, UNC Center for Environmental Health and Susceptibility Stakeholder Advisory Board meeting, Chapel Hill, NC
- 2018 Invited speaker, “Symptoms associated with dispersant exposure following the Deepwater Horizon oil spill”, American Chemical Society Annual Meeting, New Orleans, LA
- 2018 Invited panel member, “Rural Disaster Recovery/Resilience and Hurricane Matthew”, UNC Climate Change and Resilience Symposium, Chapel Hill, NC
- 2017 Invited speaker, “Pesticide use and breast cancer risk among farmers’ wives in an agricultural cohort”, Research Center on Epidemiology and Population Health (CESP) INSERM, Paris-Sud University, Paris, France
- 2016 Invited speaker, “The GuLF STUDY and the State of Disaster Research Response”, UNC Center for Environmental Health and Susceptibility Stakeholder Advisory Board meeting, Chapel Hill, NC
- 2016 Invited speaker, “The GuLF STUDY: Preliminary Observations in a Study of Health Effects among Oil Spill Clean-up Workers”, UNC Institute for the Environment, Chapel Hill, NC
- 2014 Invited speaker, “The GuLF STUDY: Design, Challenges, and Preliminary Observations in a Study of Health Effects among Oil Spill Clean-up Workers”, NC State University College of Veterinary Medicine Population Medicine seminar series, Raleigh, NC
- 2012 Invited speaker/panel member, “Challenges and Lessons Learned in the Study of Deepwater Horizon Oil Spill Clean-up Workers (GuLF STUDY)”, International Society for Biological and Environmental Repositories, Vancouver, Canada
- 2011 “Capitalizing on available monitoring data to inform exposure assessment in the GuLF STUDY” International Society for Environmental Epidemiology Annual Meeting, Barcelona, Spain
- 2010 Invited speaker, “Pesticides, persistent organic pollutants, and cancer” University of North Carolina, Chapel Hill, NC
- 2009 “Sun exposure, vitamin D receptor polymorphisms, and breast cancer risk” American Association for Cancer Research Annual Meeting, Denver, CO
- 2009 Invited speaker, “Environmental and occupational risk factors for cancer” City College of New York/Memorial Sloan-Kettering Partnership, New York, NY

- 2009 “Organochlorines and cancer: recent findings and possible mechanisms.” International Society for Environmental Epidemiology Annual Meeting, Dublin, Ireland
- 2008 “DNA repair polymorphisms, environmental exposures, and soft tissue sarcoma: A pilot study.” American Association for Cancer Research Annual Meeting, San Diego, CA
- 2008 Invited speaker, “Environmental and occupational risk factors for cancer” City College of New York/Memorial Sloan-Kettering Partnership, New York, NY
- 2008 “Serum concentrations of organochlorines and risk of malignant melanoma: results of a prospective analysis.” International Society for Environmental Epidemiology Annual Meeting, Pasadena, CA
- 2006 “PCBs and non-Hodgkin’s lymphoma: a report from three cohorts.” American Association for Cancer Research Annual Meeting, Washington, DC
- 2006 “PCBs and non-Hodgkin’s lymphoma: a report from three cohorts.” International Society for Environmental Epidemiology Annual Meeting, Paris, France
- 2005 “A nested case-control study of prediagnostic serum PCB congener concentrations and risk of non-Hodgkin’s lymphoma” American Association for Cancer Research Annual Meeting, Anaheim, CA
- 2004 “Pesticide use and breast cancer risk among farmers’ wives in the Agricultural Health Study” Society for Epidemiologic Research Annual Meeting, Salt Lake City, UT
- 2002 Invited speaker, “Pesticides and cancer” University of Washington Northwest Center for Occupational Health and Safety, Seattle, WA
- 2002 Invited speaker, “Pooled analysis and meta-analysis of GSTM1 and bladder cancer” University of North Carolina Department of Epidemiology, Chapel Hill, NC
- 2002 “Occupation and risk of esophageal and gastric cardia adenocarcinoma” International Society for Environmental Epidemiology Annual Meeting, Vancouver, British Columbia
- 2001 “Meta-analysis of the GSTM1 null genotype and risk of bladder cancer” American Association for Cancer Research Annual Meeting, New Orleans, LA
- 2001 Invited speaker, “Questionnaires and work history assessment” 10th Annual Western Migrant Stream Forum, Portland, OR
- 2000 Invited speaker, “Use of an icon/calendar-based questionnaire to assess occupational history” National Advisory Council on Migrant Health Meeting, Washington, DC

- 2000 “Validity study of self-reported pesticide exposure among orchardists” Society for Epidemiologic Research Annual Meeting, Seattle, WA
- 1998 “Comparison of a traditional questionnaire with an icon/calendar-based questionnaire to assess occupational history” Society for Epidemiologic Research Annual Meeting, Chicago, IL
- 1998 “Test-retest reliability of an icon/calendar-based questionnaire used to assess occupational history” 4th International Symposium: Rural Health and Safety in a Changing World, Saskatoon, Saskatchewan, Canada
- 1998 Invited speaker, “Comparison of a traditional questionnaire with an icon/calendar-based questionnaire to assess occupational history” 10th Annual UBC-UW Occupational and Environmental Health Conference, Blaine, WA
- 1996 “Neurophysiological function in farm workers exposed to organophosphate pesticides” American Public Health Association Annual Meeting, New York, NY
- 1995 “Maternal occupation in agriculture and risk of adverse birth outcomes in Washington State” Society for Epidemiologic Research Annual Meeting, Snowbird, UT

TEACHING ACTIVITIES

Course Responsibilities – University of North Carolina at Chapel Hill

- 2021 Small group leader, lecturer, Epidemiologic Research Methods (EPID 726), School of Public Health, Fall; 7 students in group
- 2012-present Instructor, Environmental Epidemiology (EPID 785), School of Public Health, Spring; 7-12 students per semester

Lectures – University of North Carolina at Chapel Hill

- 2021 “Enhancing Community Capacity: Understanding and Mapping Community Impacts of Hurricane Matthew”, EPID 992 (Epidemiology MPH Integrated Learning Experience)
- 2019 “Biospecimen Collection in the GuLF STUDY”, EPID 742 (Biomarkers In Population-Based Research)
- 2017 “Biospecimen Collection in the GuLF STUDY”, EPID 742 (Biomarkers In Population-Based Research)
- 2016 “Pesticide exposure and end-stage renal disease risk”, ENVR 601 (Epidemiology for Environmental Scientists and Engineers)

- 2015 “Biomarkers in the GuLF STUDY: Challenges and Opportunities in a Study of the Health Effects of the BP Oil Spill / Deepwater Horizon Disaster”, EPID 742 (Biomarkers In Population-Based Research)
- 2013 “Pesticides, Neurological Outcomes, and Gene-Environment Interactions”, ENVR 630 (Systems Biology in Environmental Health)
- 2012 “Biospecimen Collection in the GuLF STUDY”, EPID 690 (Problems in Epidemiology: Integrating Biomarkers in Population-Based Research)
- 2012 “The GuLF STUDY: Challenges and Opportunities in Investigating the Human Health Effects of the Deepwater Horizon Disaster”, ENVR 890 (Problems in Environmental Sciences and Engineering)

Lectures – Other

- 2018 “Environment and Cancer: Methodological Challenges and Some Examples”, ENVIRON 537 (Environmental Health), Duke University
- 2008-2010 “Case-Control Study Design”, Advanced Epidemiology, New York University School of Medicine

Course Responsibilities – Other

- 2014 Instructor, Environmental Epidemiology, Internationaler Kurs der Epidemiologie, Summer Course, five 3 hour sessions, Universität Ulm, Ulm, Germany
- 2004-2009 Lecturer, Community and Population-Based Epidemiology, Memorial Sloan-Kettering Cancer Center
- 1998 Lecturer, Epidemiologic Methods, Universidad Nacional, Heredia, Costa Rica
- 1996 Teaching Assistant, Introduction to Epidemiology, University of Washington
- 1994-1996 Co-Instructor, Introduction to Research Methods, Northwest Institute of Acupuncture and Oriental Medicine, Seattle, WA

MENTORING

Postdoctoral/Junior Faculty

- 2021-present Faye Koenigsmark, PhD; University of North Carolina at Chapel Hill, School of Public Health, Postdoctoral fellow, Department of Epidemiology. Associations between blood BTEXS concentrations and blood pressure/hypertension among adult residents of the U.S. Gulf States.

- 2019-present David Holcomb, PhD; University of North Carolina at Chapel Hill, School of Public Health, Postdoctoral fellow, Department of Epidemiology. Residential proximity to confined animal feeding operations and risk of urinary tract infections.
- 2018-2020 Kyle Roell, PhD; University of North Carolina at Chapel Hill, School of Public Health, Postdoctoral fellow, Department of Epidemiology. Airborne metals and neurobehavioral performance in the GuLF Study.
- 2005-2006 Joan Fortuny, MD, PhD; MSKCC, Postdoctoral fellow, Department of Epidemiology and Biostatistics. Use of anti-inflammatory drugs and lower esophageal sphincter-relaxing drugs and risk of esophageal and gastric cancers.

Predoxal Student Dissertation/Thesis Committee Chair

- 2021-present Kristen Cowan, MS; University of North Carolina at Chapel Hill, School of Public Health, PhD student, Department of Epidemiology.
- 2021-present Amelia Martin, MS; University of North Carolina at Chapel Hill, School of Public Health, PhD student, Department of Epidemiology.
- 2021-present Anjali Kumar, MS; University of North Carolina at Chapel Hill, School of Public Health, PhD student, Department of Epidemiology.
- 2020-present Christina Norris, MS; University of North Carolina at Chapel Hill, School of Public Health, PhD student, Department of Epidemiology.
- 2019-present Opal Patel, MS; University of North Carolina at Chapel Hill, School of Public Health, PhD student, Department of Epidemiology.
- 2019-present Kenny Chen Da Zhe, MSPH; University of North Carolina at Chapel Hill, School of Public Health, PhD student, Department of Epidemiology. Incident myocardial infarction in relation to BTEX-H and PM2.5 among cleanup workers during the Deepwater Horizon disaster.
- 2018-present Hanna Jardel, MS; University of North Carolina at Chapel Hill, School of Public Health, PhD student, Department of Epidemiology. Incident diabetes and temporal changes in HbA1c levels in relation to BTEX-H exposure among Deepwater Horizon cleanup workers.
- 2017-2019 Molly Remch, MSPH; University of North Carolina at Chapel Hill, School of Public Health, PhD student, Department of Epidemiology.
- 2017-2021 Arbor Quist, MSPH; University of North Carolina at Chapel Hill, School of Public Health, PhD student, Department of Epidemiology. Hurricane flooding, industrial hog operations, and acute gastrointestinal illness in North Carolina. Graduated 5/2021.

- 2016-2017 Joyce Rhoden, MSPH; University of North Carolina at Chapel Hill, School of Public Health, PhD student, Department of Epidemiology.
- 2016-2017 Gieira Jones, MSPH; University of North Carolina at Chapel Hill, School of Public Health, PhD student, Department of Epidemiology.
- 2016-2017 Giehae Choi, MSPH; University of North Carolina at Chapel Hill, School of Public Health, PhD student, Department of Epidemiology.
- 2016-2019 Kenny Chen Da Zhe, BS; University of North Carolina at Chapel Hill, School of Public Health, MSPH student, Department of Epidemiology. Organochlorine Pesticides and Non-Hodgkin Lymphoma: A Nested Case–Control Study in the Norwegian Janus Serum Bank Cohort.
- 2013-2018 Jean Strelitz, MSPH; University of North Carolina at Chapel Hill, School of Public Health, PhD student, Department of Epidemiology. Heart attacks among oil spill workers up to 5 years after the Deepwater Horizon disaster. Graduated 6/2018.
- 2013-2017 Emily Werder, MSPH; University of North Carolina at Chapel Hill, School of Public Health, PhD student, Department of Epidemiology. Spatial analysis of BTEX compounds and neurological symptoms in the GuLF Study. Graduated 12/2017.
- 2012-2014 Jill Lebov, MSPH; University of North Carolina at Chapel Hill, School of Public Health, PhD student, Department of Epidemiology. Pesticide exposures and risk of end stage renal disease. Graduated 6/2014.
- 2012-2015 John Beard, MSPH; University of North Carolina at Chapel Hill, School of Public Health, PhD student, Department of Epidemiology. Military exposures and risk of amyotrophic lateral sclerosis (ALS). Graduated 6/2015.
- 2011-2017 Kirstin Huiber, MSPH; University of North Carolina at Chapel Hill, School of Public Health, PhD student, Department of Epidemiology. Serum concentrations of organochlorines and risk of melanoma in a prospective cohort.
- 2011-2013 Jean Strelitz, BS; University of North Carolina at Chapel Hill, School of Public Health, MSPH student, Department of Epidemiology. Interaction between paraoxonase-1 activity level and organophosphate/carbamate exposure in relation to butyl cholinesterase depression.
- 2011-2012 Damon Ogburn, BS; University of North Carolina at Chapel Hill, School of Public Health, MSPH student, Department of Epidemiology. Risk factors for hepatitis B and C in a prospective cohort from the 1960s.

Predoctoral Student Dissertation/Thesis Committee Member

- 2021-present Olufunmilayo Arogbokun, MPH; University of North Carolina at Chapel Hill, School of Public Health, PhD student, Department of Epidemiology. Maternal exposure to ambient air pollution during pregnancy and prevalence of congenital heart defects and congenital limb defects: a focus on racial disparities.
- 2021-present Gouthami Rao, PhD (Civil and Environmental Engineering); University of North Carolina at Chapel Hill, School of Public Health, PhD student, Department of Environmental Sciences and Engineering. Multiplex quantitative pathogen estimation for waste surveillance and environmental risk assessment.
- 2020-2021 Richard Strott, BS; University of North Carolina at Chapel Hill, School of Public Health, MSEE student, Department of Environmental Sciences and Engineering. Bayesian Maximum Entropy modelling of BTEX and styrene in the Gulf Region of the United States.
- 2020-present Marina Sweeney, MSPH; University of North Carolina at Chapel Hill, School of Public Health, PhD student, Department of Epidemiology. Association between light at night and risks of breast and ovarian cancer.
- 2019-2020 Taylor Franklin, BSPH; University of North Carolina at Chapel Hill, School of Public Health, MSPH student, Department of Environmental Sciences and Engineering. Microbiological analysis of well water from Robeson County, North Carolina. Graduated 8/2020.
- 2019-2020 Ibrahim Zaganjor, MSPH; University of North Carolina at Chapel Hill, School of Public Health, PhD student, Department of Epidemiology. Maternal exposure to disinfection by-products and risk of hypospadias. Graduated 8/2020.
- 2017-2019 Nikki Niehoff, MSPH; University of North Carolina at Chapel Hill, School of Public Health, PhD student, Department of Epidemiology. Hazardous air pollutants in relation to breast cancer risk and telomere length. Graduated 5/2019.
- 2016-2018 Cynthia Lin, MSPH; University of North Carolina at Chapel Hill, School of Public Health, PhD student, Department of Epidemiology. Potential drinking water contamination events and human health: impact of harmful algae and main breaks. Graduated 8/2018.
- 2015-2018 Kathleen McClain, MSPH; University of North Carolina at Chapel Hill, School of Public Health, PhD student, Department of Epidemiology. Polyunsaturated fatty acids and the Barrett's esophagus-adenocarcinoma continuum. Graduated 5/2018.

- 2014-2017 Nan Li, MSPH; University of North Carolina at Chapel Hill, School of Public Health, PhD student, Department of Epidemiology. Sugar/Carbohydrate intake and the Barrett's esophagus-adenocarcinoma continuum. Graduated 5/2017.
- 2014-2015 Alexandra White, MSPH; University of North Carolina at Chapel Hill, School of Public Health, PhD student, Department of Epidemiology. Patterns of long-term PAH exposure, DNA methylation and breast cancer risk. Graduated 8/2015.
- 2014-2016 Melissa Furlong, MSPH; University of North Carolina at Chapel Hill, School of Public Health, PhD student, Department of Epidemiology. Prenatal exposure to organophosphate pesticides and other xenobiotics and neurodevelopmental patterns in childhood. Graduated 8/2016.
- 2013-2016 Kyla Taylor, MSPH; University of North Carolina at Chapel Hill, School of Public Health, PhD student, Department of Epidemiology. Personal care products and breast cancer in the NIEHS Sister Study. Graduated 6/2016.
- 2012-2016 Humberto Parada, MPH; University of North Carolina at Chapel Hill, School of Public Health, PhD student, Department of Epidemiology. Smoking and diet-related exposure to polycyclic aromatic hydrocarbons (PAHs) and survival following breast cancer. Graduated 10/2016.
- 2012-2013 Katie O'Brien, MSPH; University of North Carolina at Chapel Hill, School of Public Health, PhD student, Department of Epidemiology. A Bayesian approach to the replication of breast cancer susceptibility loci in whites and African-Americans. Graduated 4/2013.
- 2012-2013 Irina Mordukhovich, MSPH; University of North Carolina at Chapel Hill, School of Public Health, PhD student, Department of Epidemiology. Vehicular traffic exposure to polycyclic aromatic hydrocarbons and breast cancer risk. Graduated 10/2013.
- 2011-2014 Jessica Petrick, MSPH; University of North Carolina at Chapel Hill, School of Public Health, PhD student, Department of Epidemiology. Intake of dietary flavonoids, Barrett's Esophagus incidence, and esophageal and gastric cancer incidence and survival. Graduated 3/2014.

Other Predoctoral Mentoring

2002 Caroline Hoffman, BS; Pre-Doctoral Internship at NCI

CONTRACTS & GRANTS

Current

U01DK130044 (MPI: L. Engel, N. Franceschini, M. Arias) 8/25/2021 - 6/30/2026
 NIH/NIEHS/NIDDK \$2,176,375 (total, all years)

The Chorotega CKDu Epidemiology Field Study

The goal of the proposed Field Epidemiology Site (FES), located in the Chorotega region of Costa Rica, is to recruit, enroll, and follow participants for the CURE Consortium and to perform comprehensive assessments of risk factors, environmental exposures, and health contexts, in order to identify one or more causes of CKDu that could be targeted for prevention, intervention, or policy.

00042803 (MPI: R. Noble, V. Guidry, Co-I: Engel) 7/1/2021 – 6/30/2022

NC DHHS Division of Public Health

\$1,355,522 (total)

Expansion of NC DHHS/CDC National Wastewater Surveillance System within the UNC System

The purpose of this research is to refine and build upon our recent advances in infectious disease surveillance methods and predictive models based on quantifying concentration and changes in concentration of SARS-CoV-2 in municipal wastewater and relating this to prevalence and changes in prevalence of COVID-19 in the target populations.

R01 ES031127 (MPI: L. Engel, B. Baek) 8/1/2020 – 5/31/2024

NIH/NIEHS

\$1,951,379 (total, all years)

Neurological Effects of Environmental Styrene and BTEX Exposure in a Gulf of Mexico Cohort

The goal of this study is to employ state-of-the-art air quality modeling and data fusion methods, together with existing blood measurements and extensive data from a large, prospective cohort, to characterize the neurotoxic effects of ambient styrene and BTEX exposures.

IPA (PI: D. Sandler, Co-PI: L. Engel) 7/1/2010 – 4/30/2022

NIH/NIEHS

\$41,692 (direct, current year)

Gulf Long-term Follow-up Study (GuLF Study)

The purpose of this NIH-sponsored study is to investigate the short-, medium-, and long-term health effects of spill-related exposures among workers involved in the clean-up of the Deepwater Horizon oil spill in the Gulf of Mexico. We enrolled almost 33,000 workers and are administering questionnaires, collecting biospecimens, and performing clinical tests at baseline and at regular intervals during long-term follow-up.

T42-OH008673 (PI: L Nylander-French, Co-I: L. Engel) 2/1/2020 – 6/30/2022

CDC/NIOSH

\$5,330,350 (total, all years)

North Carolina Occupational Safety and Health Education and Research Center

Occupational safety and health training grant for Gillings SPH students.

Past

COVID-19 Rapid Award (PI: R. Noble, Co-I: L. Engel) 5/4/2020 - 12/31/2020

NC Policy Collaboratory

\$1,714,999 (total)

Tracking SARS-CoV-2 in the Wastewater across a Range of North Carolina Municipalities

Pilot Award (MPI: L. Engel, J. MacDonald Gibson) 5/9/2019 - 3/31/2021

UNC CEHS

\$50,000 (direct, current year)

Environmental Contributors to Health Outcomes in North Carolina's Least Healthy County

R01 ES020874 (MPI: L. Engel, J. Rusiecki) 3/1/2012 – 2/28/2018

NIH/NIEHS \$264,328 (total subcontract, all years)
Health Effects of the Deepwater Horizon Disaster: the Coast Guard Responder Cohort

Pilot Award (PI: L. Engel) 3/1/2017 – 6/30/2017
 NC Policy Collaboratory \$50,000 (direct, current year)
Enhancing Community Capacity: Understanding and Mapping Community Impacts of Hurricane Matthew

R01 CA140754 (PI: C. Johnson, Consultant: L. Engel) 4/1/2010 - 3/31/2015
 NIH/NCI \$37,350 (direct, all years)
Statins & Lymphoid Malignancy Risk in a Large Multi-Site Population-Based Cohort

R01 CA137420 (PI: J. Satagopan, Co-Investigator: L. Engel) 7/1/2009 - 4/30/2014
 NIH/NCI \$800,000 (direct, all years)
Study of Exposures, Behaviors, and Biomarkers in Cancer Epidemiology

CSTI571BUS249 (PI: L. Engel) 5/1/2007 - 7/31/2013
 Novartis Pharmaceuticals Corporation \$164,394 (direct, all years)
Genetic Risk Factors for Gastrointestinal Stromal Tumors (GIST)

R03 CA137824 (PI: L. Engel) 7/1/2009 - 6/30/2013
 NIH/NCI \$100,000 (direct, all years)
Pesticide Use & Breast Cancer Risk in Large Cohort of Female Agriculture Workers

R01 ES014662 (PI: L. Engel) 8/1/2007 - 4/30/2012
 NIH/NIEHS \$1,370,625 (direct, all years)
Serum Organochlorine Levels and Primary Liver Cancer: A Nested Case-Control Study

RSG-06-016-01 (PI: L. Engel) 1/1/2006 - 12/31/2008
 American Cancer Society \$188,361 (direct, all years)
Sunlight, Exertion, VDR Gene, and the Risk of Breast Cancer

R03 CA115211 (PI: L. Engel) 9/30/2005 - 8/31/2007
 NIH/NCI \$100,000 (direct, all years)
*Sunlight, Exertion, VDR Gene, and Risk of Breast Cancer**
 *This award was formally declined in December of 2005. The study was instead supported by an American Cancer Society award.

MSKCC Society Pilot Award (PI: L. Engel) 10/1/2003 - 12/31/2007
 MSKCC \$45,000 (direct, all years)
Pilot Study of Soft Tissue Sarcoma in Relation to Serum Levels of Dioxins and Other Organochlorines

Pending

N/A

SERVICE TO THE UNIVERSITY

Intramural Committees/Programs – University of North Carolina

- 2020-present Member, Epidemiology Inclusive Excellence Committee
2017-present Member, Working Group on Environmental Cancer, Center for Environmental Health and Susceptibility
2017 Member, Curriculum Committee, Department of Epidemiology
2015-2016 Member, Faculty Search Committee, Department of Epidemiology
2011-present Member, Population Sciences Pilot Project Review Committee, Lineberger Comprehensive Cancer Center
2011- present Member, Admissions Committee, Department of Epidemiology

Intramural Committees/Programs – Memorial Sloan-Kettering Cancer Center

- 2008-2011 Chair, MSKCC Epidemiology Service Meetings and Journal Club, Department of Epidemiology and Biostatistics

Intramural Committees/Programs – National Cancer Institute DCEG

- 2001-2002 Member, NCI Division of Cancer Epidemiology and Genetics Committee of Scientists

SERVICE TO THE PROFESSION

Extramural Grant Reviews

- 2021 Reviewer, Dutch Cancer Society (KWF Kankerbestrijding), 7/2021
2012 Temporary Member, Special Emphasis Panel/Scientific Review Group 2013/01 ZRG1 PSE-Q (02) M, October 31, 2012, Videoconference
2010 Temporary Member, Special Emphasis Panel/Scientific Review Group 2010/10 ZRG1 PSE-B (02) M, May 19, 2010, Dulles, VA
2009 Temporary Member, Special Emphasis Panel/Scientific Review Group 2009/10 ZCA1 SRLB-D (01) R, June 18-19, 2009, Bethesda, MD

Extramural Committees

- 2021-present Associate Editor, *Frontiers in Public Health, Occupational Health and Safety*
2019 Co-lead author, Summary report on cancer risk among firefighters for NC Legislature
2019-2021 Review Editor, *Frontiers in Public Health, Occupational Health and Safety*
2017-present Member, Scientific Advisory Committee, Environmental Health Study for Western New York, University at Buffalo
2016-2018 Member, External Advisory Board of the Center for Translational Environmental Health Research, Texas A&M University, Texas A&M Health Science Center, Baylor College of Medicine, and University of Houston
2011-2018 Member, Editorial Board of *Frontiers in Cancer Epidemiology and Prevention*

Other Extramural Committees

- 2019 Peer Review Panel, Draft NTP Monograph on the Systematic Review of Evidence of Long-Term Neurological Effects Following Acute Exposure to the Organophosphorus Nerve Agent Sarin
- 2018-2019 Epidemiology Subcommittee of Program Committee, 2019 AACR Annual Meeting, Atlanta, GA
- 2012 Review Committee, EPA Review on Epidemiological Studies of Health Impacts Associated with Surface Coal Mining Operations in Appalachia
- 2010-2011 Poster Committee, 2011 North American Congress of Epidemiology, Montreal, Canada

Extramural Faculty Evaluations

Fred Hutchinson Cancer Research Center
Harvard University
Rutgers University

Manuscript Reviews

American Journal of Epidemiology
American Journal of Industrial Medicine
Annals of Work Exposures and Health
Biomarkers
Blood
Cancer
Cancer Causes and Control
Cancer Epidemiology, Biomarkers, and Prevention
Cancer Genetics and Cytogenetics
Cancer Research
Environmental Epidemiology
Environmental Health Perspectives
Environment International
Epidemiology
Frontiers in Public Health
JAMA
Journal of Agromedicine
Journal of Health Care for the Poor and Underserved
Lung Cancer
National Institute of Occupational Safety and Health external review
Neurotoxicology
New England Journal of Medicine
Occupational and Environmental Medicine
PLOS ONE
Science of the Total Environment