

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

2022-present Professor, Department of Epidemiology, Gillings School of Global Public Health, University of North Carolina at Chapel Hill, NC

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

2011-2022 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 or co-senior author)

In Press

1. Arogbokun Knutson OC, Luben TJ, Stingone JA, **Engel LS**, Martin CL, Olshan AF. Racial Disparities in Maternal Exposure to Ambient Air Pollution During Pregnancy and Prevalence of Congenital Heart Defects. Am J Epidemiol. Submitted pages: 34.
2. Troost JP, D'Souza J, Buxton M, Kshirsagar AV, **Engel LS**, O'Lenick CR, Smoyer WE, Klein J, Ju W, Eddy S, Helmuth M, Mariani LH, Kretzler M, Trachtman H. Elevated Exposure To Air Pollutants Accelerates Primary Glomerular Disease Progression. Kidney Int Rep. Submitted pages: 23.
3. Lawrence KG, Sweeney MR, Werder EJ, Zuzak C, Gall M, Emrich CT, Cochran FJ, Deng X, Christenbury KE, Buller ID, Jackson II WB, **Engel LS**, Sandler DP. Am J Epidemiol. Submitted pages: 29.

In Print

1. Sweeney MR, Nichols HB, Jones RR, Olshan AF, Keil AP, **Engel LS**, James P, Sandler DP, White AJ, Jackson CL. Exposure to indoor light at night in relation to multiple dimensions of sleep health: findings from the Sister Study. *Sleep*. 2024;47(2). Epub 20230405. doi: 10.1093/sleep/zsad100. PubMed PMID: 37018759; PMCID: PMC10851850.
2. Pasha ABT, Kotlarz N, Holcomb D, Reckling S, Kays J, Bailey E, Guidry V, Christensen A, Berkowitz S, **Engel LS**, de los Reyes F, Harris A. Monitoring SARS-CoV-2 RNA in wastewater from a shared septic system and sub-sewershed sites to expand COVID-19 disease surveillance. *Journal of Water and Health*. 2024. doi: 10.2166/wh.2024.303.
3. Lin JJY, Kuiper JR, Dickerson AS, Buckley JP, Volk HE, Rohlman DS, Lawrence KG, Braxton Jackson W, 2nd, Sandler DP, **Engel LS**, Rule AM. Associations of a toenail metal mixture with attention and memory in the Gulf long-term follow-up (GuLF) study. *Sci Total Environ*. 2024;935:173387. Epub 20240523. doi: 10.1016/j.scitotenv.2024.173387. PubMed PMID: 38788945; PMCID: PMC11170656.
4. Wu Z, Petrick JL, Florio AA, Guillemette C, Beane Freeman LE, Buring JE, Bradwin G, Caron P, Chen Y, Eliassen AH, **Engel LS**, Freedman ND, Gaziano JM, Giovannuci EL, Hofmann JN, Huang WY, Kirsh VA, Kitahara CM, Koshiol J, Lee IM, Liao LM, Newton CC, Palmer JR, Purdue MP, Rohan TE, Rosenberg L, Sesso HD, Sinha R, Stampfer MJ, Um CY, Van Den Eeden SK, Visvanathan K, Wactawski-Wende J, Zeleniuch-Jacquotte A, Zhang X, Graubard BI, Campbell PT, McGlynn KA. Endogenous sex steroid hormones and risk of liver cancer among US men: Results from the Liver Cancer Pooling Project. *JHEP Rep*. 2023;5(7):100742. Epub 20230322. doi: 10.1016/j.jhepr.2023.100742. PubMed PMID: 37425211; PMCID: PMC10326694.
5. Wang C-T, Baek BH, Vizuite W, **Engel LS**, Xing J, Green J, Serre M, Strott R, Bowden J, Woo J-H. Spatiotemporally resolved emissions and concentrations of styrene, benzene, toluene, ethylbenzene, and xylenes (SBTEX) in the US Gulf region. *Earth System Science Data*. 2023;15(11):5261-79. doi: 10.5194/essd-15-5261-2023.
6. Patel OP, Lawrence KG, Parks CG, Bodkin M, Jackson WB, 3rd, **Engel LS**, Sandler DP. Neighborhood disadvantage and immune-related illnesses among residents living in the US Gulf States. *Ann Epidemiol*. 2023;78:44-6. Epub 20221228. doi: 10.1016/j.annepidem.2022.12.012. PubMed PMID: 36586457; PMCID: PMC10077875.
7. Lin JJY, Koffman LJ, Tehrani MW, Chen R, Han SG, Sandler DP, Lawrence KG, Jackson WB, 2nd, Dickerson AS, Ramachandran G, **Engel LS**, Rule AM. Reliability of low mass toenail samples as biomarkers of chronic metal exposure. *J Expo Sci Environ Epidemiol*. 2023;33(6):945-53. Epub 20230609. doi: 10.1038/s41370-023-00560-y. PubMed PMID: 37296232; PMCID: PMC10709526.
8. Lin JJ, Werder E, Lawrence KG, Jackson WB, 2nd, Sandler DP, Dickerson AS, **Engel LS**, Rule AM. Residential proximity to metal emitting industries and toenail metal concentration in the US Gulf States. *Res Sq*. 2023. Epub 20230807. doi: 10.21203/rs.3.rs-3210942/v1. PubMed PMID: 37609314; PMCID: PMC10441474.
9. Kotlarz N, Holcomb DA, Tanvir Pasha ABM, Reckling S, Kays J, Lai YC, Daly S, Palani S, Bailey E, Guidry VT, Christensen A, Berkowitz S, Hoppin JA, Mitsova H, **Engel LS**, de los Reyes FL, 3rd, Harris A. Timing and Trends for Municipal Wastewater, Lab-Confirmed Case, and Syndromic Case Surveillance of COVID-19 in Raleigh, North

- Carolina. *Am J Public Health*. 2023;113(1):79-88. Epub 20221110. doi: 10.2105/AJPH.2022.307108. PubMed PMID: 36356280; PMCID: PMC9755929.
10. Hoffman K, Holcomb D, Reckling S, Clerkin T, Blackwood D, Beattie R, de los Reyes F, Harris A, Mitasova H, Kotlarz N, Stewart J, Kazenelson J, Cahoon L, Frampton A, Munir M, Lee A, Berkowitz S, Noble R, Guidry VT, **#Engel L**, **#Serre M**, **#Christensen A**. Using detrending to assess SARS-CoV-2 wastewater loads as a leading indicator of fluctuations in COVID-19 cases at fine temporal scales: Correlations across twenty sewersheds in North Carolina. *PLOS Water*. 2023;2(10):e0000140. doi: 10.1371/journal.pwat.0000140.
 11. Hammel SC, Eftekhari A, Eichler CMA, Liu CW, Nylander-French LA, **Engel LS**, Lu K, Morrison GC. Reducing Transdermal Uptake of Semivolatile Plasticizers from Indoor Environments: A Clothing Intervention. *Environ Sci Technol*. 2023;57(49):20678-88. Epub 20231129. doi: 10.1021/acs.est.3c06142. PubMed PMID: 38019971.
 12. Grube AM, Coleman CK, LaMontagne CD, Miller ME, Kothehal NP, Holcomb DA, Blackwood AD, Clerkin TJ, Serre ML, **Engel LS**, Guidry VT, Noble RT, Stewart JR. Detection of SARS-CoV-2 RNA in wastewater and comparison to COVID-19 cases in two sewersheds, North Carolina, USA. *Sci Total Environ*. 2023;858(Pt 3):159996. Epub 20221107. doi: 10.1016/j.scitotenv.2022.159996. PubMed PMID: 36356771; PMCID: PMC9639408.
 13. Denic-Roberts H, **Engel LS**, Buchanich JM, Miller RG, Talbott EO, Thomas DL, Cook GA, Costacou T, Rusiecki JA. Risk of longer-term neurological conditions in the Deepwater Horizon Oil Spill Coast Guard Cohort Study - Five years of follow-up. *Environ Health*. 2023;22(1):12. Epub 20230125. doi: 10.1186/s12940-022-00941-0. PubMed PMID: 36694171; PMCID: PMC9875433.
 14. *Norris CL, Sandler DP, Pratt GC, Stenzel MR, Stewart PA, Jackson WB, 2nd, Gerr FE, Groth C, Banerjee S, Lawrence KG, Kwok RK, Werder EJ, **Engel LS**. Association between spill-related exposure to fine particulate matter and peripheral motor and sensory nerve function among oil spill response and cleanup workers following the Deepwater Horizon oil spill. *J Expo Sci Environ Epidemiol*. 2023. Epub 20230713. doi: 10.1038/s41370-023-00558-6. PubMed PMID: 37443296.
 15. *Chen D, Werder EJ, Stewart PA, Stenzel MR, Gerr FE, Lawrence KG, Groth CP, Huynh TB, Ramachandran G, Banerjee S, Jackson WB, 2nd, Christenbury K, Kwok RK, Sandler DP, **Engel LS**. Exposure to volatile hydrocarbons and neurologic function among oil spill workers up to 6 years after the Deepwater Horizon disaster. *Environ Res*. 2023;231(Pt 1):116069. Epub 20230505. doi: 10.1016/j.envres.2023.116069. PubMed PMID: 37149022.
 16. *Chen D, Sandler DP, Keil AP, Heiss G, Whitsel EA, Pratt GC, Stewart PA, Stenzel MR, Groth CP, Banerjee S, Huynh TB, Edwards JK, Jackson WB, 2nd, Engeda J, Kwok RK, Werder EJ, Lawrence KG, **Engel LS**. Fine particulate matter and incident coronary heart disease events up to 10 years of follow-up among Deepwater Horizon oil spill workers. *Environ Res*. 2023;217:114841. Epub 20221117. doi: 10.1016/j.envres.2022.114841. PubMed PMID: 36403648; PMCID: PMC9825646.
 17. *Chen D, Sandler DP, Keil AP, Heiss G, Whitsel EA, Edwards JK, Stewart PA, Stenzel MR, Groth CP, Ramachandran G, Banerjee S, Huynh TB, Jackson WB, 2nd, Blair A, Lawrence KG, Kwok RK, **Engel LS**. Volatile Hydrocarbon Exposures and Incident Coronary Heart Disease Events: Up to Ten Years of Follow-up among Deepwater Horizon

- Oil Spill Workers. *Environ Health Perspect.* 2023;131(5):57006. Epub 20230524. doi: 10.1289/ehp11859. PubMed PMID: 37224072; PMCID: PMC10208425.
18. Zaganjor I, Keil AP, Luben TJ, Desrosiers TA, **Engel LS**, Reefhuis J, Michalski AM, Langlois PH, Olshan AF, National Birth Defects Prevention S. Is maternal employment site a source of exposure misclassification in studies of environmental exposures and birth outcomes? A simulation-based bias analysis of haloacetic acids in tap water and hypospadias. *Environ Epidemiol.* 2022;6(2):e207. Epub 20220331. doi: 10.1097/EE9.000000000000207. PubMed PMID: 35434460; PMCID: PMC9005252.
 19. 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 Deepwater Horizon oil spill. *J Trauma Stress.* 2022;35(4):1099-114. Epub 20220315. doi: 10.1002/jts.22817. PubMed PMID: 35290683; PMCID: PMC9355914.
 20. Sweeney MR, Nichols HB, Jones RR, Olshan AF, Keil AP, **Engel LS**, James P, Jackson CL, Sandler DP, White AJ. Light at night and the risk of breast cancer: Findings from the Sister study. *Environ Int.* 2022;169:107495. Epub 20220902. doi: 10.1016/j.envint.2022.107495. PubMed PMID: 36084405; PMCID: PMC9561075.
 21. 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.* 2022;66(Suppl 1):i234-i46. doi: 10.1093/annweh/wxab073. PubMed PMID: 34642740; PMCID: PMC8989031.
 22. Stewart P, 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. *Ann Work Expo Health.* 2022;66(Suppl 1):i3-i22. doi: 10.1093/annweh/wxab107. PubMed PMID: 35390131; PMCID: PMC8989041.
 23. 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. *Ann Work Expo Health.* 2022;66(Suppl 1):i23-i55. doi: 10.1093/annweh/wxab093. PubMed PMID: 35390128; PMCID: PMC8989038.
 24. 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.* 2022;66(Suppl 1):i56-i70. doi: 10.1093/annweh/wxab060. PubMed PMID: 34417597; PMCID: PMC8989036.
 25. 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.* 2022;66(Suppl 1):i202-i17. doi: 10.1093/annweh/wxab056. PubMed PMID: 34409429; PMCID: PMC8989032.
 26. 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.* 2022;203:111824. Epub 20210805. doi: 10.1016/j.envres.2021.111824. PubMed PMID: 34364859; PMCID: PMC8616774.

27. 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*. 2022;66(Suppl 1):i156-i171. doi: 10.1093/annweh/wxab066. PubMed PMID: 34516617; PMCID: PMC8989043.
28. 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*. 2022;66(Suppl 1):i172-i187. doi: 10.1093/annweh/wxaa084. PubMed PMID: 32936300; PMCID: PMC8989033.
29. Manley CK, Villanger GD, Thomsen C, Cequier E, Sakhi AK, Reichborn-Kjennerud T, Herring AH, Overgaard KR, Zeiner P, Roell KR, **Engel LS**, Kamai EM, Thistle J, Hall A, Aase H, Engel SM. Prenatal Exposure to Organophosphorus Pesticides and Preschool ADHD in the Norwegian Mother, Father and Child Cohort Study. *Int J Environ Res Public Health*. 2022;19(13). Epub 20220702. doi: 10.3390/ijerph19138148. PubMed PMID: 35805806; PMCID: PMC9266339.
30. Lawrence KG, Niehoff NM, Keil AP, Braxton Jackson W, 2nd, Christenbury K, Stewart PA, Stenzel MR, Huynh TB, Groth CP, Ramachandran G, Banerjee S, Pratt GC, Curry MD, **Engel LS**, Sandler DP. Associations between airborne crude oil chemicals and symptom-based asthma. *Environ Int*. 2022;167:107433. Epub 20220727. doi: 10.1016/j.envint.2022.107433. PubMed PMID: 35921771; PMCID: PMC9378681.
31. Kwok RK, Jackson WB, 2nd, 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. Association of Deepwater Horizon Oil Spill Response and Cleanup Work With Risk of Developing Hypertension. *JAMA Netw Open*. 2022;5(2):e220108. Epub 20220201. doi: 10.1001/jamanetworkopen.2022.0108. PubMed PMID: 35195699; PMCID: PMC8867245.
32. Kshirsagar AV, Zeitler EM, Weaver A, Franceschini N, **Engel LS**. Environmental Exposures and Kidney Disease. *Kidney360*. 2022;3(12):2174-82. Epub 20221017. doi: 10.34067/KID.0007962021. PubMed PMID: 36591345; PMCID: PMC9802544.
33. 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*. 2022;66(Suppl 1):i89-i110. doi: 10.1093/annweh/wxaa072. PubMed PMID: 33009797; PMCID: PMC8989034.
34. 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*. 2022;66(Suppl 1):i111-i123. doi: 10.1093/annweh/wxaa113. PubMed PMID: 33791771; PMCID: PMC8989039.
35. 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. *Annals of Work Exposures and Health*. 2022;66(Supplement_1):i124-i39. doi: 10.1093/annweh/wxab028. PubMed PMID: 34368831; PMCID: PMC8989042.

36. 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*. 2022;66(Suppl 1):i71-i88. doi: 10.1093/annweh/wxab064. PubMed PMID: 34473212; PMCID: PMC8989044.
37. 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*. 2022;66(Suppl 1):i140-i55. doi: 10.1093/annweh/wxab038. PubMed PMID: 34184747; PMCID: PMC8989035.
38. 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. *Environ Epidemiol*. 2022;6(3):e211. Epub 20220502. doi: 10.1097/EE9.0000000000000211. PubMed PMID: 35702499; PMCID: PMC9187181.
39. 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. *Environ Int*. 2022;158:106937. Epub 20211020. doi: 10.1016/j.envint.2021.106937. PubMed PMID: 34688052; PMCID: PMC8688193.
40. 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*. 2022;814:152503. Epub 20211223. doi: 10.1016/j.scitotenv.2021.152503. PubMed PMID: 34954186; PMCID: PMC8697423.
41. Arnold S, Stewart PA, Pratt GC, Ramachandran G, Kwok RK, **Engel LS**, Sandler DP, Stenzel MR. Estimation of Aerosol Concentrations of Oil Dispersants COREXIT EC9527A and EC9500A during the Deepwater Horizon Oil Spill Response and Clean-up Operations. *Ann Work Expo Health*. 2022;66(Suppl 1):i188-i202. doi: 10.1093/annweh/wxab108. PubMed PMID: 35390130; PMCID: PMC8989030.
42. *Quist AJL, Holcomb DA, Fliss MD, Delamater PL, Richardson DB, **Engel LS**. Exposure to industrial hog operations and gastrointestinal illness in North Carolina, USA. *Sci Total Environ*. 2022;830:154823. Epub 20220325. doi: 10.1016/j.scitotenv.2022.154823. PubMed PMID: 35341848; PMCID: PMC9133154.
43. *Quist AJL, Fliss MD, Wade TJ, Delamater PL, Richardson DB, **Engel LS**. Hurricane flooding and acute gastrointestinal illness in North Carolina. *Sci Total Environ*. 2022;809:151108. Epub 20211022. doi: 10.1016/j.scitotenv.2021.151108. PubMed PMID: 34688737; PMCID: PMC8770555.
44. *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. *Environ Res*. 2022;212(Pt E):113591. Epub 20220601. doi: 10.1016/j.envres.2022.113591. PubMed PMID: 35661735; PMCID: PMC9267393.
45. *Holcomb DA, Quist AJL, **Engel LS**. Exposure to industrial hog and poultry operations and urinary tract infections in North Carolina, USA. *Sci Total Environ*. 2022;853:158749. Epub 20220913. doi: 10.1016/j.scitotenv.2022.158749. PubMed PMID: 36108846; PMCID: PMC9613609.

46. *Chen D, Lawrence KG, Pratt GC, Stenzel MR, Stewart PA, Groth CP, Banerjee S, Christenbury K, Curry MD, Jackson WB, 2nd, Kwok RK, Blair A, **Engel LS**, Sandler DP. Fine Particulate Matter and Lung Function among Burning-Exposed Deepwater Horizon Oil Spill Workers. *Environ Health Perspect.* 2022;130(2):27001. Epub 20220201. doi: 10.1289/EHP8930. PubMed PMID: 35103485; PMCID: PMC8805798.
47. 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. Epub 20210723. doi: 10.1016/j.envres.2021.111734. PubMed PMID: 34303682; PMCID: PMC8578391.
48. 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. Epub 20210806. doi: 10.1097/EE9.000000000000160. PubMed PMID: 34414344; PMCID: PMC8367062.
49. Stallard MA, Mulhern R, Greenwood E, Franklin T, **Engel LS**, Fisher MB, Sobsey MD, Zanih 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. Epub 20210429. doi: 10.1016/j.wroa.2021.100102. PubMed PMID: 34027379; PMCID: PMC8131969.
50. 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. doi: 10.1097/EDE.0000000000001356. PubMed PMID: 33788793; PMCID: PMC8159846.
51. 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;58(4). Epub 20211028. doi: 10.1183/13993003.00712-2021. PubMed PMID: 34326186.
52. 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. Epub 20210917. doi: 10.1016/j.rmed.2021.106618. PubMed PMID: 34571455; PMCID: PMC8607548.
53. Hu MD, Lawrence KG, Gall M, Emrich CT, Bodkin MR, Jackson WB, 2nd, MacNell 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. Epub 20210218. doi: 10.1038/s41370-021-00301-z. PubMed PMID: 33603095; PMCID: PMC8371064.
54. 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. doi: 10.1093/aje/kwaa206. PubMed PMID: 33524122; PMCID: PMC7850038.
55. 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). Epub 20201221. doi: 10.3390/ijerph17249564. PubMed PMID: 33371304; PMCID: PMC7766973.
56. 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. Epub 20201204. doi: 10.1097/EE9.000000000000115. PubMed PMID: 33336134; PMCID: PMC7727467.
57. 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. Epub 20200320. doi: 10.1016/j.fct.2020.111242. PubMed PMID: 32205228; PMCID: PMC7368391.
 58. 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. Epub 20201015. doi: 10.3389/fpubh.2020.578463. PubMed PMID: 33178663; PMCID: PMC7593336.
 59. 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**, Group PIS. Influence of KRAS mutations, persistent organic pollutants, and trace elements on survival from pancreatic ductal adenocarcinoma. *Environ Res.* 2020;190:109781. Epub 20200611. doi: 10.1016/j.envres.2020.109781. PubMed PMID: 32791343; PMCID: PMC7689512.
 60. 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. Epub 2019/12/07. doi: 10.1002/hep.31057. PubMed PMID: 31808181; PMCID: PMC7391790.
 61. 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. Epub 20200408. doi: 10.1016/j.ijheh.2020.113522. PubMed PMID: 32276222; PMCID: PMC7387141.
 62. Lodge EK, **Engel LS**, Ferrando-Martinez 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. Epub 20200512. doi: 10.1038/s41370-020-0226-2. PubMed PMID: 32398779; PMCID: PMC7483819.
 63. 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. Epub 20200405. doi: 10.1080/15287394.2020.1745111. PubMed PMID: 32249687; PMCID: PMC7837370.
 64. Bassig BA, Shu XO, Sjodin 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. Epub 20190509. doi: 10.1002/ijc.32350. PubMed PMID: 31001807; PMCID: PMC8244652.
65. *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. Epub 20200527. doi: 10.1097/EE9.000000000000097. PubMed PMID: 32613154; PMCID: PMC7289136.
 66. *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. Epub 20200520. doi: 10.1016/j.envres.2020.109690. PubMed PMID: 32474310; PMCID: PMC7317661.
 67. *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. Epub 20200429. doi: 10.1016/j.envres.2020.109515. PubMed PMID: 32445944; PMCID: PMC9278122.
 68. 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. Epub 20190504. doi: 10.1016/j.envres.2019.05.004. PubMed PMID: 31108353; PMCID: PMC6571161.
 69. 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. Epub 20190201. doi: 10.1016/j.envint.2019.01.032. PubMed PMID: 30716576; PMCID: PMC6448589.
 70. 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). Epub 20190628. doi: 10.1097/ee9.000000000000053. PubMed PMID: 32984752; PMCID: PMC7517667.
 71. 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. Epub 20190618. doi: 10.1016/j.envint.2019.06.007. PubMed PMID: 31226564; PMCID: PMC6679994.
 72. 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. Epub 2018/04/17. doi: 10.1093/biostatistics/kxy016. PubMed PMID: 29659722; PMCID: PMC6659171.
 73. 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. Epub 20190326. doi: 10.1002/jts.22392. PubMed PMID: 30913348; PMCID: PMC6476642.
 74. 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. Epub 2019/08/21. doi: 10.1097/EDE.0000000000001083. PubMed PMID: 31430266.
75. 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. Epub 2019/08/04. doi: 10.1007/s40572-019-00241-9. PubMed PMID: 31376082; PMCID: PMC6699641.
 76. 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. Epub 20190802. doi: 10.1016/j.envint.2019.104963. PubMed PMID: 31382236; PMCID: PMC6786260.
 77. Gorman Ng M, Cherrie JW, Sleenwenhoek 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;66(Suppl 1):i218-33. Epub 20190723. doi: 10.1093/annweh/wxz037. PubMed PMID: 31334553; PMCID: PMC8989037.
 78. 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. Epub 20181106. doi: 10.1017/dmp.2018.120. PubMed PMID: 30398128; PMCID: PMC6762031.
 79. **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. Epub 20190214. doi: 10.1002/ijc.32175. PubMed PMID: 30701531; PMCID: PMC6667305.
 80. 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. Epub 20190202. doi: 10.1016/j.envint.2019.01.066. PubMed PMID: 30721827.
 81. *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. Epub 2019/04/23. doi: 10.1289/EHP3954. PubMed PMID: 31009265; PMCID: PMC6785236.
 82. *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. Epub 20181213. doi: 10.1038/s41370-018-0098-x. PubMed PMID: 30546124; PMCID: PMC6763388.
 83. *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. Epub 2019/01/31. doi: 10.1093/aje/kwz017. PubMed PMID: 30698634; PMCID: PMC6494668.
 84. *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. Epub 20180922. doi: 10.1016/j.envres.2018.09.026. PubMed PMID: 30278364; PMCID: PMC6263782.
85. *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. Epub 20191023. doi: 10.1016/j.envres.2019.108834. PubMed PMID: 31703974; PMCID: PMC6878206.
 86. 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. Epub 20171229. doi: 10.1038/s41370-017-0010-0. PubMed PMID: 29288257; PMCID: PMC6013310.
 87. 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. Epub 20180221. doi: 10.1289/EHP1480. PubMed PMID: 29467107; PMCID: PMC6066348.
 88. 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. Epub 20171018. doi: 10.1038/jes.2017.16. PubMed PMID: 29064482; PMCID: PMC6104396.
 89. 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. Epub 20170912. doi: 10.1136/oemed-2017-104343. PubMed PMID: 28899964; PMCID: PMC6526931.
 90. Lerro CC, Jones RR, Langseth H, Grimsrud TK, **Engel LS**, Sjodin 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. Epub 20180423. doi: 10.1016/j.envres.2018.04.012. PubMed PMID: 29698872; PMCID: PMC5999553.
 91. 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. Epub 2018/02/02. doi: 10.1097/JOM.0000000000001292. PubMed PMID: 29389810; PMCID: PMC5995629.
 92. 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. Epub 2018/01/31. doi: 10.1097/EDE.0000000000000808. PubMed PMID: 29381492; PMCID: PMC5882518.
 93. 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. Epub 20181011. doi: 10.1016/j.envint.2018.09.058. PubMed PMID: 30317099; PMCID: PMC6400458.
94. 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. Epub 2017/11/28. doi: 10.1007/s10578-017-0773-5. PubMed PMID: 29177988; PMCID: PMC6432778.
 95. 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, Cancer Research Network Lymphoma Study G. Serum cholesterol trajectories in the 10 years prior to lymphoma diagnosis. *Cancer Causes Control.* 2018;29(1):143-56. Epub 20171130. doi: 10.1007/s10552-017-0987-7. PubMed PMID: 29192350; PMCID: PMC5864123.
 96. 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. Epub 20180111. doi: 10.1016/j.envres.2017.11.044. PubMed PMID: 29331799; PMCID: PMC5811337.
 97. *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. Epub 20181001. doi: 10.1016/j.envint.2018.09.025. PubMed PMID: 30278311; PMCID: PMC6712572.
 98. *Strelitz J, **Engel LS**, Kwok RK, Miller AK, Blair A, Sandler DP. Deepwater Horizon oil spill exposures and nonfatal myocardial infarction in the GuLF STUDY. *Environ Health.* 2018;17(1):69. Epub 20180825. doi: 10.1186/s12940-018-0408-8. PubMed PMID: 30144816; PMCID: PMC6109340.
 99. 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. Epub 20170125. doi: 10.1038/jes.2016.82. PubMed PMID: 28120835; PMCID: PMC5526738.
 100. 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). Epub 20170105. doi: 10.1093/jnci/djw299. PubMed PMID: 28052933; PMCID: PMC5214623.
 101. 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). Epub 20170921. doi: 10.1093/jncics/pkx001. PubMed PMID: 29608187; PMCID: PMC5875926.
 102. 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. Epub 20161007. doi: 10.1158/1055-9965.EPI-16-0658. PubMed PMID: 27765798; PMCID: PMC5296216.
 103. 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. Epub 20170915. doi: 10.1289/EHP1677. PubMed PMID: 28934097; PMCID: PMC5915187.
104. 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. Epub 2017/10/19. doi: 10.1093/ije/dyx203. PubMed PMID: 29040685; PMCID: PMC5837717.
 105. 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. Epub 20170901. doi: 10.1007/s10654-017-0301-8. PubMed PMID: 28864851; PMCID: PMC6331010.
 106. 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. Epub 20171027. doi: 10.1016/S2468-2667(17)30194-9. PubMed PMID: 29253441; PMCID: PMC6051348.
 107. 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. Epub 2017/04/11. doi: 10.1093/annweh/wxx003. PubMed PMID: 28395309; PMCID: PMC6363054.
 108. 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. Epub 20170722. doi: 10.1016/j.envres.2017.07.023. PubMed PMID: 28743040; PMCID: PMC5577985.
 109. 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. Epub 20170515. doi: 10.1002/ijc.30745. PubMed PMID: 28425616; PMCID: PMC5508532.
 110. **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. Epub 20170906. doi: 10.1289/EHP1295. PubMed PMID: 28934092; PMCID: PMC5915194.
 111. #Kwok RK, #**Engel LS**, Miller AK, Blair A, Curry MD, Jackson WB, Stewart PA, Stenzel MR, Birnbaum LS, Sandler DP. The GuLF STUDY: A Prospective Study of Persons Involved in the Deepwater Horizon Oil Spill Response and Clean-Up. *Environ Health Perspect.* 2017;125(4):570-8. Epub 20170331. doi: 10.1289/EHP715. PubMed PMID: 28362265; PMCID: PMC5382003.
 112. #**Engel LS**, #Kwok RK, Miller AK, Blair A, Curry MD, McGrath JA, Sandler DP. The Gulf Long-Term Follow-Up Study (GuLF STUDY): Biospecimen collection at enrollment. *J Toxicol Environ Health A.* 2017;80(4):218-29. Epub 2017/04/19. doi: 10.1080/15287394.2017.1283274. PubMed PMID: 28418274; PMCID: PMC5522735.

113. *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. Epub 2017/04/28. doi: 10.1016/j.envres.2017.03.048. PubMed PMID: 28448810; PMCID: PMC5687063.
114. *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. Epub 2017/10/11. doi: 10.1371/journal.pone.0185751. PubMed PMID: 29016608; PMCID: PMC5634564.
115. White AJ, Chen J, Teitelbaum SL, McCullough LE, Xu X, Hee Cho Y, Conway K, Beyea J, Stellman SD, Steck SE, Mordukhovich I, Eng SM, Beth Terry M, **Engel LS**, Hatch M, Neugut AI, Hibshoosh H, Santella RM, Gammon MD. Sources of polycyclic aromatic hydrocarbons are associated with gene-specific promoter methylation in women with breast cancer. *Environ Res.* 2016;145:93-100. Epub 2015/12/17. doi: 10.1016/j.envres.2015.11.033. PubMed PMID: 26671626; PMCID: PMC4706465.
116. White AJ, Bradshaw PT, Herring AH, Teitelbaum SL, Beyea J, Stellman SD, Steck SE, Mordukhovich I, Eng SM, **Engel LS**, Conway K, Hatch M, Neugut AI, Santella RM, Gammon MD. Exposure to multiple sources of polycyclic aromatic hydrocarbons and breast cancer incidence. *Environ Int.* 2016;89-90:185-92. Epub 2016/02/16. doi: 10.1016/j.envint.2016.02.009. PubMed PMID: 26878284; PMCID: PMC4818720.
117. Satagopan JM, Sen A, Zhou Q, Lan Q, Rothman N, Langseth H, **Engel LS**. Bayes and empirical Bayes methods for reduced rank regression models in matched case-control studies. *Biometrics.* 2016;72(2):584-95. Epub 2015/11/18. doi: 10.1111/biom.12444. PubMed PMID: 26575519; PMCID: PMC4870158.
118. Petrick JL, Freedman ND, Demuth J, Yang B, Van Den Eeden SK, **Engel LS**, McGlynn KA. Obesity, diabetes, serum glucose, and risk of primary liver cancer by birth cohort, race/ethnicity, and sex: Multiphasic health checkup study. *Cancer Epidemiol.* 2016;42:140-6. Epub 2016/05/06. doi: 10.1016/j.canep.2016.04.009. PubMed PMID: 27148890; PMCID: PMC4899157.
119. Parada H, Jr., Wolff MS, **Engel LS**, White AJ, Eng SM, Cleveland RJ, Khankari NK, Teitelbaum SL, Neugut AI, Gammon MD. Organochlorine insecticides DDT and chlordane in relation to survival following breast cancer. *Int J Cancer.* 2016;138(3):565-75. Epub 2015/08/19. doi: 10.1002/ijc.29806. PubMed PMID: 26285160; PMCID: PMC4715584.
120. Parada H, Jr., Wolff MS, **Engel LS**, Eng SM, Khankari NK, Neugut AI, Teitelbaum SL, Gammon MD. Polychlorinated biphenyls and their association with survival following breast cancer. *Eur J Cancer.* 2016;56:21-30. Epub 2016/01/23. doi: 10.1016/j.ejca.2015.11.023. PubMed PMID: 26798968; PMCID: PMC4769903.
121. Mordukhovich I, Beyea J, Herring AH, Hatch M, Stellman SD, Teitelbaum SL, Richardson DB, Millikan RC, **Engel LS**, Shantakumar S, Steck SE, Neugut AI, Rossner P, Jr., Santella RM, Gammon MD. Vehicular Traffic-Related Polycyclic Aromatic Hydrocarbon Exposure and Breast Cancer Incidence: The Long Island Breast Cancer Study Project (LIBCSP). *Environ Health Perspect.* 2016;124(1):30-8. Epub 2015/05/27. doi: 10.1289/ehp.1307736. PubMed PMID: 26008800; PMCID: PMC4710589.
122. Mordukhovich I, Beyea J, Herring AH, Hatch M, Stellman SD, Teitelbaum SL, Richardson DB, Millikan RC, **Engel LS**, Shantakumar S, Steck SE, Neugut AI, Rossner P, Jr., Santella RM, Gammon MD. Polymorphisms in DNA repair genes, traffic-related polycyclic

- aromatic hydrocarbon exposure and breast cancer incidence. *Int J Cancer*. 2016;139(2):310-21. Epub 2016/03/08. doi: 10.1002/ijc.30079. PubMed PMID: 26946191; PMCID: PMC5295853.
123. Lowe SR, Kwok RK, Payne J, **Engel LS**, Galea S, Sandler DP. Why Does Disaster Recovery Work Influence Mental Health?: Pathways through Physical Health and Household Income. *Am J Community Psychol*. 2016;58(3-4):354-64. Epub 2016/10/06. doi: 10.1002/ajcp.12091. PubMed PMID: 27704561; PMCID: PMC5547997.
 124. Huynh T, Quick H, Ramachandran G, Banerjee S, Stenzel M, Sandler DP, **Engel LS**, Kwok RK, Blair A, Stewart PA. A Comparison of the β -Substitution Method and a Bayesian Method for Analyzing Left-Censored Data. *Ann Occup Hyg*. 2016;60(1):56-73. Epub 2015/07/26. doi: 10.1093/annhyg/mev049. PubMed PMID: 26209598; PMCID: PMC4715251.
 125. *Lebov JF, **Engel LS**, Richardson D, Hogan SL, Hoppin JA, Sandler DP. Pesticide use and risk of end-stage renal disease among licensed pesticide applicators in the Agricultural Health Study. *Occup Environ Med*. 2016;73(1):3-12. Epub 2015/07/17. doi: 10.1136/oemed-2014-102615. PubMed PMID: 26177651; PMCID: PMC5342837.
 126. *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 etiology. *Environ Int*. 2016;91:104-15. Epub 2016/03/01. doi: 10.1016/j.envint.2016.02.014. PubMed PMID: 26923711; PMCID: PMC4876822.
 127. Resnik DB, Miller AK, Kwok RK, **Engel LS**, Sandler DP. Ethical Issues in Environmental Health Research Related to Public Health Emergencies: Reflections on the GuLF STUDY. *Environ Health Perspect*. 2015;123(9):A227-31. Epub 2015/09/02. doi: 10.1289/ehp.1509889. PubMed PMID: 26325057; PMCID: PMC4559957.
 128. Petrick JL, Steck SE, Bradshaw PT, Trivers KF, Abrahamson PE, **Engel LS**, He K, Chow WH, Mayne ST, Risch HA, Vaughan TL, Gammon MD. Dietary intake of flavonoids and oesophageal and gastric cancer: incidence and survival in the United States of America (USA). *Br J Cancer*. 2015;112(7):1291-300. Epub 2015/02/11. doi: 10.1038/bjc.2015.25. PubMed PMID: 25668011; PMCID: PMC4385952.
 129. Petrick JL, Steck SE, Bradshaw PT, Chow WH, **Engel LS**, He K, Risch HA, Vaughan TL, Gammon MD. Dietary flavonoid intake and Barrett's esophagus in western Washington State. *Ann Epidemiol*. 2015;25(10):730-5.e2. Epub 2015/07/15. doi: 10.1016/j.annepidem.2015.05.010. PubMed PMID: 26169148; PMCID: PMC4567908.
 130. Pearce N, Blair A, Vineis P, Ahrens W, Andersen A, Anto JM, Armstrong BK, Baccarelli AA, Beland FA, Berrington A, Bertazzi PA, Birnbaum LS, Brownson RC, Bucher JR, Cantor KP, Cardis E, Cherrie JW, Christiani DC, Cocco P, Coggon D, Comba P, Demers PA, Dement JM, Douwes J, Eisen EA, **Engel LS**, Fenske RA, Fleming LE, Fletcher T, Fonham E, Forastiere F, Frentzel-Beyme R, Fritschi L, Gerin M, Goldberg M, Grandjean P, Grimsrud TK, Gustavsson P, Haines A, Hartge P, Hansen J, Hauptmann M, Heederik D, Hemminki K, Hemon D, Hertz-Picciotto I, Hoppin JA, Huff J, Jarvholm B, Kang D, Karagas MR, Kjaerheim K, Kjuus H, Kogevinas M, Kriebel D, Kristensen P, Kromhout H, Laden F, LeBailly P, LeMasters G, Lubin JH, Lynch CF, Lynge E, t Mannelje A, McMichael AJ, McLaughlin JR, Marrett L, Martuzzi M, Merchant JA, Merler E, Merletti F, Miller A, Mirer FE, Monson R, Nordby KC, Olshan AF, Parent ME, Perera FP, Perry MJ, Pesatori AC, Pirastu R, Porta M, Pukkala E, Rice C, Richardson DB, Ritter L, Ritz B,

- Ronckers CM, Rushton L, Rusiecki JA, Rusyn I, Samet JM, Sandler DP, de Sanjose S, Schernhammer E, Costantini AS, Seixas N, Shy C, Siemiatycki J, Silverman DT, Simonato L, Smith AH, Smith MT, Spinelli JJ, Spitz MR, Stallones L, Stayner LT, Steenland K, Stenzel M, Stewart BW, Stewart PA, Symanski E, Terracini B, Tolbert PE, Vainio H, Vena J, Vermeulen R, Victora CG, Ward EM, Weinberg CR, Weisenburger D, Wesseling C, Weiderpass E, Zahm SH. IARC monographs: 40 years of evaluating carcinogenic hazards to humans. *Environ Health Perspect.* 2015;123(6):507-14. Epub 2015/02/26. doi: 10.1289/ehp.1409149. PubMed PMID: 25712798; PMCID: PMC4455595.
131. Lowe SR, Kwok RK, Payne J, **Engel LS**, Galea S, Sandler DP. Mental health service use by cleanup workers in the aftermath of the Deepwater Horizon oil spill. *Soc Sci Med.* 2015;130:125-34. Epub 2015/02/24. doi: 10.1016/j.socscimed.2015.02.009. PubMed PMID: 25697635; PMCID: PMC4363993.
 132. Koutros S, Langseth H, Grimsrud TK, Barr DB, Vermeulen R, Portengen L, Wacholder S, Freeman LE, Blair A, Hayes RB, Rothman N, **Engel LS**. Prediagnostic Serum Organochlorine Concentrations and Metastatic Prostate Cancer: A Nested Case-Control Study in the Norwegian Janus Serum Bank Cohort. *Environ Health Perspect.* 2015;123(9):867-72. Epub 2015/03/04. doi: 10.1289/ehp.1408245. PubMed PMID: 25734605; PMCID: PMC4559951.
 133. *Starling AP, **Engel LS**, Calafat AM, Koutros S, Satagopan JM, Yang G, Matthews CE, Cai Q, Buckley JP, Ji BT, Cai H, Chow WH, Zheng W, Gao YT, Rothman N, Xiang YB, Shu XO. Predictors and long-term reproducibility of urinary phthalate metabolites in middle-aged men and women living in urban Shanghai. *Environ Int.* 2015;84:94-106. Epub 2015/08/11. doi: 10.1016/j.envint.2015.07.003. PubMed PMID: 26255822; PMCID: PMC4570864.
 134. *Lebov JF, **Engel LS**, Richardson D, Hogan SL, Sandler DP, Hoppin JA. Pesticide exposure and end-stage renal disease risk among wives of pesticide applicators in the Agricultural Health Study. *Environ Res.* 2015;143(Pt A):198-210. Epub 2015/10/28. doi: 10.1016/j.envres.2015.10.002. PubMed PMID: 26505650; PMCID: PMC4662544.
 135. Quick H, Groth C, Banerjee S, Carlin BP, Stenzel MR, Stewart PA, Sandler DP, **Engel LS**, Kwok RK. Exploration of the use of Bayesian modeling of gradients for censored spatiotemporal data from the Deepwater Horizon oil spill. *Spat Stat.* 2014;9:166-79. Epub 2015/01/20. doi: 10.1016/j.spasta.2014.03.002. PubMed PMID: 25599019; PMCID: PMC4294982.
 136. O'Brien KM, Cole SR, Poole C, Bensen JT, Herring AH, **Engel LS**, Millikan RC. Replication of breast cancer susceptibility loci in whites and African Americans using a Bayesian approach. *Am J Epidemiol.* 2014;179(3):382-94. Epub 2013/11/13. doi: 10.1093/aje/kwt258. PubMed PMID: 24218030; PMCID: PMC3895095.
 137. O'Brien KM, Cole SR, **Engel LS**, Bensen JT, Poole C, Herring AH, Millikan RC. Breast cancer subtypes and previously established genetic risk factors: a bayesian approach. *Cancer Epidemiol Biomarkers Prev.* 2014;23(1):84-97. Epub 2013/11/02. doi: 10.1158/1055-9965.epi-13-0463. PubMed PMID: 24177593; PMCID: PMC3947131.
 138. McGlynn KA, Divine GW, Sahasrabudde VV, **Engel LS**, VanSlooten A, Wells K, Yood MU, Alford SH. Statin use and risk of hepatocellular carcinoma in a U.S. population. *Cancer Epidemiol.* 2014;38(5):523-7. Epub 2014/08/13. doi: 10.1016/j.canep.2014.06.009. PubMed PMID: 25113938; PMCID: PMC4188715.

139. Huynh T, Ramachandran G, Banerjee S, Monteiro J, Stenzel M, Sandler DP, **Engel LS**, Kwok RK, Blair A, Stewart PA. Comparison of methods for analyzing left-censored occupational exposure data. *Ann Occup Hyg.* 2014;58(9):1126-42. Epub 2014/09/28. doi: 10.1093/annhyg/meu067. PubMed PMID: 25261453; PMCID: PMC4271092.
140. **Engel LS**, Satagopan J, Sima CS, Orlow I, Mujumdar U, Coble J, Roy P, Yoo S, Sandler DP, Alavanja MC. Sun exposure, vitamin D receptor genetic variants, and risk of breast cancer in the Agricultural Health Study. *Environ Health Perspect.* 2014;122(2):165-71. Epub 2013/11/21. doi: 10.1289/ehp.1206274. PubMed PMID: 24252436; PMCID: PMC3915256.
141. **Engel LS**, Buckley JP, Yang G, Liao LM, Satagopan J, Calafat AM, Matthews CE, Cai Q, Ji BT, Cai H, Engel SM, Wolff MS, Rothman N, Zheng W, Xiang YB, Shu XO, Gao YT, Chow WH. Predictors and variability of repeat measurements of urinary phenols and parabens in a cohort of Shanghai women and men. *Environ Health Perspect.* 2014;122(7):733-40. Epub 2014/03/25. doi: 10.1289/ehp.1306830. PubMed PMID: 24659570; PMCID: PMC4080538.
142. *Strelitz J, **Engel LS**, Keifer MC. Blood acetylcholinesterase and butyrylcholinesterase as biomarkers of cholinesterase depression among pesticide handlers. *Occup Environ Med.* 2014;71(12):842-7. Epub 2014/09/06. doi: 10.1136/oemed-2014-102315. PubMed PMID: 25189163; PMCID: PMC4224972.
143. *O'Brien KM, Orlow I, Antonescu CR, Ballman K, McCall L, DeMatteo R, **Engel LS**. Gastrointestinal stromal tumors, somatic mutations and candidate genetic risk variants. *PLoS One.* 2013;8(4):e62119. Epub 2013/05/03. doi: 10.1371/journal.pone.0062119. PubMed PMID: 23637977; PMCID: PMC3630216.
144. *O'Brien KM, Orlow I, Antonescu CR, Ballman K, McCall L, Dematteo R, **Engel LS**. Gastrointestinal stromal tumors: a case-only analysis of single nucleotide polymorphisms and somatic mutations. *Clin Sarcoma Res.* 2013;3(1):12. Epub 2013/10/29. doi: 10.1186/2045-3329-3-12. PubMed PMID: 24159917; PMCID: PMC3827940.
145. Hosgood HD, 3rd, Chapman RS, Wei H, He X, Tian L, Liu LZ, Lai H, **Engel LS**, Chen W, Rothman N, Lan Q. Coal mining is associated with lung cancer risk in Xuanwei, China. *Am J Ind Med.* 2012;55(1):5-10. Epub 2011/10/12. doi: 10.1002/ajim.21014. PubMed PMID: 21987405; PMCID: PMC3308012.
146. **Engel LS**, Orlow I, Sima CS, Satagopan J, Mujumdar U, Roy P, Yoo S, Sandler DP, Alavanja MC. Vitamin D receptor gene haplotypes and polymorphisms and risk of breast cancer: a nested case-control study. *Cancer Epidemiol Biomarkers Prev.* 2012;21(10):1856-67. Epub 2012/08/16. doi: 10.1158/1055-9965.epi-12-0551. PubMed PMID: 22892281; PMCID: PMC3483029.
147. Purdue MP, **Engel LS**, Langseth H, Needham LL, Andersen A, Barr DB, Blair A, Rothman N, McGlynn KA. Prediagnostic serum concentrations of organochlorine compounds and risk of testicular germ cell tumors. *Environ Health Perspect.* 2009;117(10):1514-9. Epub 2009/12/19. doi: 10.1289/ehp.0800359. PubMed PMID: 20019899; PMCID: PMC2790503.
148. Kamel F, **Engel LS**, Gladen BC, Hoppin JA, Alavanja MC, Sandler DP. Neurologic symptoms in licensed pesticide applicators in the Agricultural Health Study. *Hum Exp Toxicol.* 2007;26(3):243-50. Epub 2007/04/19. doi: 10.1177/0960327107070582. PubMed PMID: 17439927.

149. **Engel LS**, Lan Q, Rothman N. Polychlorinated biphenyls and non-Hodgkin lymphoma. *Cancer Epidemiol Biomarkers Prev.* 2007;16(3):373-6. Epub 2007/03/06. doi: 10.1158/1055-9965.epi-07-0055. PubMed PMID: 17337641.
150. **Engel LS**, Laden F, Andersen A, Strickland PT, Blair A, Needham LL, Barr DB, Wolff MS, Helzlsouer K, Hunter DJ, Lan Q, Cantor KP, Comstock GW, Brock JW, Bush D, Hoover RN, Rothman N. Polychlorinated biphenyl levels in peripheral blood and non-Hodgkin's lymphoma: a report from three cohorts. *Cancer Res.* 2007;67(11):5545-52. Epub 2007/06/05. doi: 10.1158/0008-5472.can-06-3906. PubMed PMID: 17545638.
151. *Fortuny J, Johnson CC, Bohlke K, Chow WH, Hart G, Kucera G, Mujumdar U, Ownby D, Wells K, Yood MU, **Engel LS**. Use of anti-inflammatory drugs and lower esophageal sphincter-relaxing drugs and risk of esophageal and gastric cancers. *Clin Gastroenterol Hepatol.* 2007;5(10):1154-9.e3. Epub 2007/07/24. doi: 10.1016/j.cgh.2007.05.022. PubMed PMID: 17644046; PMCID: PMC2140196.
152. Kang D, Gridley G, Huang WY, **Engel LS**, Winn DM, Brown LM, Bravo-Otero E, Wu T, Diehl SR, Hayes RB. Microsatellite polymorphisms in the epidermal growth factor receptor (EGFR) gene and the transforming growth factor-alpha (TGFA) gene and risk of oral cancer in Puerto Rico. *Pharmacogenet Genomics.* 2005;15(5):343-7. Epub 2005/05/03. doi: 10.1097/01213011-200505000-00010. PubMed PMID: 15864136.
153. Kamel F, **Engel LS**, Gladen BC, Hoppin JA, Alavanja MC, Sandler DP. Neurologic symptoms in licensed private pesticide applicators in the Agricultural Health Study. *Environ Health Perspect.* 2005;113(7):877-82. Epub 2005/07/09. doi: 10.1289/ehp.7645. PubMed PMID: 16002376; PMCID: PMC1257649.
154. **Engel LS**, Hill DA, Hoppin JA, Lubin JH, Lynch CF, Pierce J, Samanic C, Sandler DP, Blair A, Alavanja MC. Pesticide use and breast cancer risk among farmers' wives in the Agricultural Health Study. *Am J Epidemiol.* 2005;161(2):121-35. Epub 2005/01/06. doi: 10.1093/aje/kwi022. PubMed PMID: 15632262.
155. Takaro TK, **Engel LS**, Keifer M, Bigbee WL, Kavanagh TJ, Checkoway H. Glycophorin A is a potential biomarker for the mutagenic effects of pesticides. *Int J Occup Environ Health.* 2004;10(3):256-61. Epub 2004/10/12. doi: 10.1179/oeh.2004.10.3.256. PubMed PMID: 15473078.
156. Monge P, Wesseling C, **Engel LS**, Keifer M, Zuurbier M, Rojas M, Partanen T. An icon-based interview for the assessment of occupational pesticide exposure in a case-control study of childhood leukemia. *Int J Occup Environ Health.* 2004;10(1):72-8. Epub 2004/04/09. doi: 10.1179/oeh.2004.10.1.72. PubMed PMID: 15070028.
157. **Engel LS**, Chow WH, Vaughan TL, Gammon MD, Risch HA, Stanford JL, Schoenberg JB, Mayne ST, Dubrow R, Rotterdam H, West AB, Blaser M, Blot WJ, Gail MH, Fraumeni JF, Jr. Population attributable risks of esophageal and gastric cancers. *J Natl Cancer Inst.* 2003;95(18):1404-13. Epub 2003/09/18. doi: 10.1093/jnci/djg047. PubMed PMID: 13130116.
158. **Engel LS**, Vaughan TL, Gammon MD, Chow WH, Risch HA, Dubrow R, Mayne ST, Rotterdam H, Schoenberg JB, Stanford JL, West AB, Blot WJ, Fraumeni JF, Jr. Occupation and risk of esophageal and gastric cardia adenocarcinoma. *Am J Ind Med.* 2002;42(1):11-22. Epub 2002/07/12. doi: 10.1002/ajim.10077. PubMed PMID: 12111686.
159. **Engel LS**, Taioli E, Pfeiffer R, Garcia-Closas M, Marcus PM, Lan Q, Boffetta P, Vineis P, Autrup H, Bell DA, Branch RA, Brockmüller J, Daly AK, Heckbert SR, Kalina I, Kang D, Katoh T, Lafuente A, Lin HJ, Romkes M, Taylor JA, Rothman N. Pooled analysis and

- meta-analysis of glutathione S-transferase M1 and bladder cancer: a HuGE review. *Am J Epidemiol.* 2002;156(2):95-109. Epub 2002/07/16. doi: 10.1093/aje/kwf018. PubMed PMID: 12117698.
160. **Engel LS**, Rothman N, Knott C, Lynch CF, Logsdan-Sackett N, Tarone RE, Alavanja MC. Factors associated with refusal to provide a buccal cell sample in the Agricultural Health Study. *Cancer Epidemiol Biomarkers Prev.* 2002;11(5):493-6. Epub 2002/05/16. PubMed PMID: 12010865.
 161. Coble J, Hoppin JA, **Engel L**, Elci OC, Dosemeci M, Lynch CF, Alavanja M. Prevalence of exposure to solvents, metals, grain dust, and other hazards among farmers in the Agricultural Health Study. *J Expo Anal Environ Epidemiol.* 2002;12(6):418-26. Epub 2002/11/05. doi: 10.1038/sj.jea.7500248. PubMed PMID: 12415490.
 162. Zahm SH, Colt JS, **Engel LS**, Keifer MC, Alvarado AJ, Burau K, Butterfield P, Caldera S, Cooper SP, Garcia D, Hanis C, Hendrikson E, Heyer N, Hunt LM, Krauska M, MacNaughton N, McDonnell CJ, Mills PK, Mull LD, Nordstrom DL, Outterson B, Slesinger DP, Smith MA, Stallones L, Stephens C, Sweeney A, Sweitzer K, Vernon SW, Blair A. Development of a life events/icon calendar questionnaire to ascertain occupational histories and other characteristics of migrant farmworkers. *Am J Ind Med.* 2001;40(5):490-501. Epub 2001/10/25. doi: 10.1002/ajim.1117. PubMed PMID: 11675618.
 163. Mull LD, **Engel LS**, Outterson B, Zahm SH. National farmworker database: establishing a farmworker cohort for epidemiologic research. *Am J Ind Med.* 2001;40(5):612-8. Epub 2001/10/25. doi: 10.1002/ajim.10016. PubMed PMID: 11675632.
 164. Lan Q, Chow WH, Lissowska J, Hein DW, Buetow K, **Engel LS**, Ji B, Zatonski W, Rothman N. Glutathione S-transferase genotypes and stomach cancer in a population-based case-control study in Warsaw, Poland. *Pharmacogenetics.* 2001;11(8):655-61. Epub 2001/11/03. doi: 10.1097/00008571-200111000-00003. PubMed PMID: 11692073.
 165. **Engel LS**, Seixas NS, Keifer MC, Longstreth WT, Jr., Checkoway H. Validity study of self-reported pesticide exposure among orchardists. *J Expo Anal Environ Epidemiol.* 2001;11(5):359-68. Epub 2001/11/01. doi: 10.1038/sj.jea.7500176. PubMed PMID: 11687909.
 166. **Engel LS**, Keifer MC, Zahm SH. Comparison of a traditional questionnaire with an icon/calendar-based questionnaire to assess occupational history. *Am J Ind Med.* 2001;40(5):502-11. Epub 2001/10/25. doi: 10.1002/ajim.1118. PubMed PMID: 11675619.
 167. **Engel LS**, Keifer MC, Thompson ML, Zahm SH. Test-retest reliability of an icon/calendar-based questionnaire used to assess occupational history. *Am J Ind Med.* 2001;40(5):512-22. Epub 2001/10/25. doi: 10.1002/ajim.1119. PubMed PMID: 11675620.
 168. **Engel LS**, Checkoway H, Keifer MC, Seixas NS, Longstreth WT, Jr., Scott KC, Hudnell K, Anger WK, Camicioli R. Parkinsonism and occupational exposure to pesticides. *Occup Environ Med.* 2001;58(9):582-9. Epub 2001/08/21. doi: 10.1136/oem.58.9.582. PubMed PMID: 11511745; PMCID: PMC1740189.
 169. Colt JS, **Engel LS**, Keifer MC, Thompson ML, Zahm SH. Comparability of data obtained from migrant farmworkers and their spouses on occupational history. *Am J Ind Med.* 2001;40(5):523-30. Epub 2001/10/25. doi: 10.1002/ajim.1120. PubMed PMID: 11675621.
 170. **Engel LS**, O'Meara ES, Schwartz SM. Maternal occupation in agriculture and risk of limb defects in Washington State, 1980-1993. *Scand J Work Environ Health.* 2000;26(3):193-8. Epub 2000/07/20. doi: 10.5271/sjweh.531. PubMed PMID: 10901110.

171. **Engel LS**, Keifer MC, Checkoway H, Robinson LR, Vaughan TL. Neurophysiological function in farm workers exposed to organophosphate pesticides. *Arch Environ Health*. 1998;53(1):7-14. Epub 1998/05/07. doi: 10.1080/00039899809605684. PubMed PMID: 9570304.
172. Zahm SH, Blair A, Alvarado A, Butterfield P, Cooper S, DeStefano F, Egan J, **Engel L**, Garcia D, Hendrikson E, Heppel M, Heyer N, Hunt L, Keifer MC, Krauska M, McDonnell C, Mills P, Mountain K, Mull LD, Nordstrom D, Outterson B, Rottenberg L, Ryder R, Slesinger DP, Smith MA, Stallones L, Stephens C, Stevens D, Sweeney A, Torres LR, Vernon S, Wilk V. Cancer feasibility studies among migrant farmworkers. The Farmworker Epidemiology Research Group. *Am J Ind Med*. 1997;32(3):301-2. Epub 1997/09/01. doi: 10.1002/(sici)1097-0274(199709)32:3<301::aid-ajim17>3.0.co;2-z. PubMed PMID: 9219661.

Submitted

1. *Patel OP, Lawrence KG, Parks CG, Stewart PA, Stenzel MR, Groth CP, Ramachandran G, Banerjee S, Huynh TB, Jackson B, Sandler DP, **Engel LS**. Volatile hydrocarbon exposures and immune-related illnesses among Deepwater Horizon oil spill workers. *J Expo Sci Environ Epidemiol*. Submitted pages: 25.
2. *Norris CL, Sandler DP, Pratt GC, Stenzel MR, Stewart PA, Jackson II WB, Werder EJ, Gerr FE, Lawrence KG, Kwok RK, **Engel LS**. Examining associations between exposure to spill-related PM2.5 and the prevalence of neurological symptoms during the Deepwater Horizon oil spill and at GuLF Study enrollment. *Environ Int*. Submitted pages: 38.
3. Abbott N, Semone L, Strott R, Dodda P, Wang CT, Green J, Baek BH, **Engel L**, Vizuette W, Serre ML. *Environ Sci Tech*. Submitted pages: 48.
4. Neally SJ, Lawrence KG, Engel LS, Christenbury K, Jackson II WB, Werder EJ, Sandler DP. Neighborhood socioeconomic deprivation and mental health indicators among Gulf Coast resident. *J Ment Health*. Submitted pages: 34.
5. Anderson C, Krishnamurthy J, McAdam J, Denic-Roberts H, Priest E, Thomas D, **Engel LS**, Rusiecki J. Acute Gastrointestinal Symptoms associated with Oil Spill Exposures among U.S. Coast Guard Responders to the Deepwater Horizon Oil Spill. *Ann Epidemiol*. Submitted pages: 22.
6. Claudel SE, Waikar SS, Chronic Kidney Disease of Uncertain Etiology (CKDu) in Agricultural Communities (CURE) Research Consortium. *Kidney Injury Biomarkers for the Evaluation of Chronic Kidney Disease of Uncertain Etiology: A Systematic Review*.
7. *Choi GH, Sandler DP, Kwok RK, Miller AK, Blair A, **Engel LS**. Blood styrene concentration and neurobehavioral measures among Gulf state residents. *J Expo Sci Environ Epidemiol*. Submitted pages: 21.
8. Denic-Roberts H, **Engel LS**, Buchanich JM, Miller RG, Talbott EO, Thomas DL, Emerick JE, Costacou T, Jennifer A. Rusiecki JA. Risk of longer-term endocrine and metabolic conditions in the Deepwater Horizon Oil Spill Coast Guard Cohort study – Five years of follow-up. *Environ Int*. Submitted pages: 28.
9. *Quist AJL, Fliss M, Wade TJ, Delamater PL, Richardson DB, **Engel LS**. Hurricane flooding, proximity to confined animal feeding operations, and acute gastrointestinal illness in North Carolina. *PLOS One*. Submitted pages: 21.
10. 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. Eur J Epidemiol. Submitted pages: 29.

In preparation

1. *Martin A, Lawrence KG, Kwok RK, Stewart PA, Stenzel MR, Groth C, Huynh T, Banerjee S, Ramachandran G, Jackson B, Richey M, Sandler DP, **Engel LS**. Associations between dermal exposure to crude oil chemicals and neurological symptoms among Deepwater Horizon oil spill workers.
2. *Cowan KN, Werder EJ, Lawrence KG, Kwok RK, Stewart PA, Stenzel MR, Groth C, Huynh T, Banerjee S, Ramachandran G, Jackson B, Richey M, Sandler DP, **Engel LS**. Associations between airborne crude oil chemicals and neurological symptoms among workers in the Deepwater Horizon Oil Spill GuLF Study.
3. **Engel LS**, Kwok RK, Stewart PA, Stenzel MR, Blair A, Miller AK, Curry MD, Sandler DP. BTEX-H exposure and biomarkers of kidney injury in the GuLF Study.
4. *Werder EJ, Chen D, Kwok RK, Stewart PA, Stenzel MR, Blair A, Miller AK, Curry MD, Sandler DP, **Engel LS**. BTEX-H exposure and biomarkers of liver injury in the GuLF Study.
5. *Roell K, Werder EJ, Rohlman D, Kwok RK, Sandler DP, **Engel LS**. Ambient Air Toxic Exposure and Neurobehavioral Outcomes in the GuLF STUDY.
6. 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. Fish and polyunsaturated fatty acid dietary intake measures in relation to esophageal and gastric cardia adenocarcinoma.

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

- 2024 Invited speaker, “The Gulf Long-term Follow-up Study: Design and Challenges in a Study of Oil Spill Clean-up Workers”, Disaster Research Response (DR2) Network in Asia Workshop, Tokyo, Japan
- 2023 Invited speaker, “Environmental exposures and cancer”, Janus Biobank 50-year anniversary, Cancer Registry of Norway, Oslo, Norway
- 2023 Invited speaker, “Overview of GuLF Study Results and Knowledge Gaps”, Workshop on Offshore Worker Studies, Cancer Registry of Norway, Oslo, Norway

- 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, 2023 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; 7-15 students per semester

Lectures – University of North Carolina at Chapel Hill

- 2023 “The GuLF Study: Conducting an Occupational Epidemiology Study among Disaster Responders”, ENVR 795/HBEH 785 (Critical Issues in Work, Worker and Workplace Health)
- 2023 “Overview of Exposure Assessment in Occupational Epidemiology”, HBEH786 (Essential Methods for Evaluating Worker and Workplace Health)
- 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

2023-present	Colton Walker, MD; University of North Carolina at Chapel Hill, School of Public Health, <u>MSCR fellow</u> , Department of Epidemiology. Effect of Environmental Quality on Prostate Cancer-Specific and Overall Mortality.
2021-2023	Faye Koenigsmark, PhD; University of North Carolina at Chapel Hill, School of Public Health, <u>Postdoctoral fellow</u> , Department of Epidemiology. Associations between blood BTEXS concentrations and blood pressure/hypertension among adult residents of the U.S. Gulf States.
2019-2023	David Holcomb, PhD; University of North Carolina at Chapel Hill, School of Public Health, <u>Postdoctoral fellow</u> , 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, <u>Postdoctoral fellow</u> , Department of Epidemiology. Airborne metals and neurobehavioral performance in the GuLF Study.
2005-2006	Joan Fortuny, MD, PhD; MSKCC, <u>Postdoctoral fellow</u> , Department of Epidemiology and Biostatistics. Use of anti-inflammatory drugs and lower esophageal sphincter-relaxing drugs and risk of esophageal and gastric cancers.

Predocctoral Student Dissertation/Thesis Committee Chair

2023-present	Erik Slawsky, MS; University of North Carolina at Chapel Hill, School of Public Health, <u>PhD student</u> , Department of Epidemiology. Association of occupational and residential noise exposures with Alzheimer's disease and related dementias among Atherosclerosis Risk in Communities Neurocognitive Study Cohort participants.
2021-present	Kristen Cowan, MS; University of North Carolina at Chapel Hill, School of Public Health, <u>PhD student</u> , Department of Epidemiology. Measuring the

association between wildfire smoke exposure and poor health outcomes for people who are incarcerated.

- 2021-present Amelia Martin, MS; University of North Carolina at Chapel Hill, School of Public Health, PhD student, Department of Epidemiology. Weather-related natural disasters and mental health outcomes among a large, prospective, multi-state cohort of farmers.
- 2020-present Christina Norris, MS; University of North Carolina at Chapel Hill, School of Public Health, PhD student, Department of Epidemiology. Acute respiratory health effects associated with agricultural crop burning in Costa Rica.
- 2019-present Opal Patel, MS; University of North Carolina at Chapel Hill, School of Public Health, PhD student, Department of Epidemiology. Association of oil spill related total hydrocarbon exposure with hypertension and other CVD-related biomarkers among Gulf Long-term Follow-up Study participants.
- 2019-2022 Kenny Da Zhe Chen, 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. Graduated 8/2022.
- 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 Da Zhe Chen, 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.

Predocutorial Student Dissertation/Thesis Committee Member

- 2024-present Joyce Pak, MPH; University of North Carolina at Chapel Hill, School of Public Health, PhD student, Department of Epidemiology. Evaluation of the Impacts of Hurricane-related flooding on delays in initial cancer-directed care and mortality in North Carolina.
- 2023-2024 Nora Abbott, BS; University of North Carolina at Chapel Hill, School of Public Health, MSEE student, Department of Environmental Sciences and Engineering. Space/Time estimation of air SBTEX concentrations in the Gulf of Mexico region.

- 2023-2024 Mercy Neal, BS; University of North Carolina at Chapel Hill, School of Public Health, MSPH student, Department of Environmental Sciences and Engineering. Estimation of Occupational Exposure of Artisanal Fishers following the 2019 Oil Spill in Northeastern Brazil.
- 2023-present Arjun Keshava, MPH; University of North Carolina at Chapel Hill, School of Public Health, PhD student, Department of Environmental Sciences and Engineering. PM_{2.5} and Associated Heavy Metals – Lung Toxicity and Outcomes.
- 2022-present Cherrel Manley, BS; University of North Carolina at Chapel Hill, School of Public Health, PhD student, Department of Epidemiology. Prenatal drinking water nitrate and adverse pregnancy outcomes.
- 2022-present Carolyn Eberle, MPH; University of North Carolina at Chapel Hill, School of Public Health, PhD student, Department of Epidemiology. Exploring effect modification by potential endotoxin exposure on the associations of smoking and organophosphorus pesticide exposures with lung cancer risk and respiratory disease-related mortality.
- 2022-present Nikhil Kothegal, MS; University of North Carolina at Chapel Hill, School of Public Health, PhD student, Department of Environmental Sciences and Engineering. Assessing Environmental Quality and Health Risks Following Extreme Weather Events, North Carolina.
- 2022-present Brittany Trottier, MS; University of North Carolina at Chapel Hill, School of Public Health, PhD student, Department of Epidemiology. Residential proximity to Superfund sites: Associations with sociodemographic characteristics and breast cancer.
- 2021-2023 Francie Sentilles, BS; University of North Carolina at Chapel Hill, School of Public Health, MSPH student, Department of Environmental Sciences and Engineering. Disaster response and oil exposures in fishing communities after the August 2019 Northeastern Brazil Oil Spill.
- 2021-2023 Allison Lee, BS; University of North Carolina at Chapel Hill, School of Public Health, MSEE student, Department of Environmental Sciences and Engineering. Space/Time Estimation of Precipitation and Evaluation of Daily Inflow and Infiltration across North Carolina Wastewater Treatment Plants to Inform Wastewater-based Epidemiology.
- 2021-2022 Lucie Semone, BS; University of North Carolina at Chapel Hill, School of Public Health, MSEE student, Department of Environmental Sciences and Engineering. Data fusion in modeling of air concentrations of volatile organic compounds in the Gulf of Mexico region.

- 2021-2022 Kelly Hoffman, BS; University of North Carolina at Chapel Hill, School of Public Health, MSEE student, Department of Environmental Sciences and Engineering. Estimating lead and lag times in wastewater surveillance of COVID-19.
- 2021-2022 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.
- 2021-2023 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.
- 2020-2023 Joyce Lin, MHS; Johns Hopkins Bloomberg School of Public Health, PhD student, Department of Environmental Health and Engineering. Metal biomonitoring using low-mass toenail samples: Applications in environmental epidemiology.
- 2020-2022 Marina Sweeney, MSPH; University of North Carolina at Chapel Hill, School of Public Health, PhD student, Department of Epidemiology. Indoor and outdoor Light at Night: Associations with breast cancer and sleep health.
- 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

T42-OH008673 (PI: L Nylander-French, Co-I: L. Engel) 7/1/2017 – 6/30/2027
CDC/NIOSH \$9,000,000 (total, all years)

North Carolina Occupational Safety and Health Education and Research Center
Occupational safety and health training grant for Gillings SPH students.

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

The Chorotega CKDu Epidemiology Field Study

The goal of this Field Epidemiology Site (FES), located in the CKDu-endemic 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, omics, and health contexts, as well as a family study, in order to identify one or more causes of CKDu that could be targeted for prevention, intervention, or policy.

R01 ES031127 (MPI: L. Engel, B. Baek) 8/1/2020 – 5/31/2025
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 – 6/30/2024
NIH/NIEHS \$65,895 (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.

Past

00044120 (MPI: R. Noble, V. Guidry, Co-I: L. Engel) 7/1/2022 – 6/30/2023
NC DHHS Division of Public Health \$1,329,127 (total)

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

The purpose of this research is to continue 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.

00042803 (MPI: R. Noble, V. Guidry, Co-I: L. 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.

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

SERVICE TO THE UNIVERSITY

Intramural Committees/Programs – University of North Carolina

2023-present Co-Chair, Climate Change Working Group, Gillings School of Global Public Health
2023 Reviewer, Place and Health Pilot Projects Program, Gillings School of Global Public Health
2022-present Member, Student finance working group, Department of Epidemiology
2022 Reviewer, Campbell Dissertation Awards
2022-2023 Member, Faculty Search Committee, Department of Epidemiology
2021-present Reviewer, Pilot Projects Program, Center For Environmental Health And Susceptibility
2021 Reviewer, Dissertation Completion Fellowship Awards
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

- 2024 Temporary Member, Special Emphasis Panel/Scientific Review Group 2024/05 ZAG1 ZIJ-P (M2), February 13, 2024, Videoconference
- 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