

PROMOTION RECOMMENDATION
The University of Michigan
School of Public Health
Department of Environmental Health Sciences
Department of Epidemiology

Marie S. O'Neill, associate professor of environmental health sciences, with tenure, Department of Environmental Health Sciences, and associate professor of epidemiology, with tenure, Department of Epidemiology, School of Public Health, is recommended for promotion to professor of environmental health sciences, with tenure, Department of Environmental Health Sciences, and professor of epidemiology, with tenure, Department of Epidemiology, School of Public Health.

Academic Degrees:

Ph.D.	2000	University of North Carolina at Chapel Hill
M.S.	1997	Harvard University
B.A.	1996	Brown University

Professional Record:

2010-present	Associate Professor, Departments of Epidemiology and Environmental Health Sciences, University of Michigan School of Public Health
2006-2010	Assistant Professor, Departments of Epidemiology and Environmental Health Sciences, University of Michigan School of Public Health
2004-2006	Robert Wood Johnson Health & Society Scholar, University of Michigan School of Public Health, Department of Epidemiology
2001-2004	Research Fellow in Environmental Epidemiology, Harvard School of Public Health, Exposure, Epidemiology and Risk Program, Boston, MA
2001	Investigator in Environmental Health, Instituto Nacional de Salud Publica (National Institute for Public Health), Cuernavaca, Mexico
1999-2000	Fulbright Scholar, Centro Nacional de Salud Ambiental (National Center for Environmental Health)/Colegio de Mexico (College of Mexico), Metepec and Mexico City, Mexico
1997-1998	Health Scientist, U.S. Environmental Protection Agency, Human Studies Division, Chapel Hill, NC
1992-1995	Environmental Protection Specialist, U.S. Environmental Protection Agency, Indoor Environments Division, Washington, DC

Summary of Evaluation:

Teaching: Professor O'Neill has taught effectively at a high level throughout her career. She has been successful in melding her expertise and scholarship across environmental science and epidemiology disciplines to delivering important and relevant course offerings. Her teaching philosophy is based on a collaborative learning model where she is able to actively engage students and work with them on a personal level.

Since her last promotion, she has been able to continue to teach courses she created and refined earlier in her career. Her main teaching responsibility has been a cross-listed course in environmental epidemiology, which expertly integrates her knowledge and expertise in environmental and exposure sciences with epidemiology. She has also been the past lead instructor for EHS 501, occupational and environmental disease, which has been offered to both residential and executive masters programs. Student course evaluations and overall teaching scores have been consistently high and have been accompanied by many positive comments from students regarding the quality of instruction, the scope of material covered and the rigor with which it was presented. Many of the positive comments reflected the effectiveness of Professor O'Neill's collaborative teaching philosophy.

In terms of teaching and development of academic programs, Professor O'Neill plays an important role in the development and coordination of the two separate occupational and environmental epidemiology curricula in the EHS and EPID departments, including the continued recruitment of excellent new students. Efforts are currently underway to better integrate and improve the two programs and Professor O'Neill will certainly play a significant role in the success of these efforts.

Professor O'Neill has supervised and continues to supervise the work of a number of graduate students and post-doctoral fellows. She has had nine PhD students graduate since 2010, and is currently primary advisor to three others. She is also currently a committee member for four PhD students. Throughout her career, her advising and mentorship load has been greater than other colleagues at her comparable rank. The success she has had in mentoring excellent students through to completion of their degrees speaks to her passion and dedication toward teaching and scholarship.

Research: Professor O'Neill's research is focused on the application of environmental epidemiology methodologies to study the impacts of air pollution and climate change on health outcomes. This work includes the study of domestic and international populations and emphasizes the effects of environmental factors such as increased ambient temperatures on health in general. Vulnerable populations such as the very young or elderly have been a special focus of her work. Her stated career research goals are to apply skills in environmental epidemiology for the development of new and better means to mitigate the severe and increasing human health threats associated with ambient air pollution and climate change. In achieving these goals, she also integrates basic research, training, and service to address critical issues of social justice (e.g., diversity, equity, and inclusion of the marginalized and those at greatest risk).

Other areas of research include: 1) Mechanistic relationships between air pollution and cardiovascular health and negative birth outcomes such as prematurity and low birth weight, including innovative, repeated measures pregnancy cohort studies; and 2) Air pollution and health research in Mexico City (expanded to include birth outcomes: two R-01s, including an Outstanding New Environmental Scientist (ONES) R-01 award). Data analysis for these projects is ongoing and will take several more years to complete.

Throughout the last 12 years, Professor O’Neill has maintained a high standard of productivity through publication of 86 peer-reviewed papers, 53 of which published since submitting materials for promotion to associate professor. The impact of her work is exemplified by the frequent citations of her published work (294 citations to date for her most frequently cited article: a review and synthesis of air pollution and health disparities conducted with an international team of experts in environmental and social determinants of health). Additionally, her overall research impact is exemplified by being invited to participate in the two most recent U.S. National Climate Assessments. During the first assessment, she served as a contributing author for the *Climate Impacts on Health* sector, and in the second assessment as a member of a Federal Advisory Committee, for which she received a thank you letter from President Barack Obama in July 2014.

Professor O’Neill plans to continue to expand her work in Mexico City to integrate climate change related exposures, noise, temperature, vegetation, and socio-economic factors in a more holistic approach towards evaluating determinants of birth outcomes in urban contexts. She plans to take on new challenges by incorporating community-based participatory research principles into epidemiological research on priority environmental health issues facing the state of Michigan.

Recent and Significant Publications

Gronlund CJ, Zanobetti A, Wellenius GA, Schwartz JD, O’Neill MS. (2016) “Vulnerability to renal, heat and respiratory hospitalizations during extreme heat among U.S. elderly.” *Climatic Change*, 136:3:631–645. (Doi: 10.1007/s10584-016-1638-9. NIHMSID: NIHMS766760).

Hajat A, Hsia C, O’Neill MS. (2015) “Socioeconomic disparities and air pollution exposure: A global review.” *Curr Environ Health Rep.*, 2(4):440-50. (Doi: 10.1007/s40572-015-0069-5. PubMed PMID: 26381684).

Fleischer NL, Merialdi M, van Donkelaar A, Vadillo-Ortega F, Martin RV, Betran AP, Souza JP, O’Neill MS. (2014) “Outdoor air pollution, preterm birth, and low birth weight: Analysis of the World Health Organization Global Survey on Maternal and Perinatal Health.” *Environmental Health Perspectives*, 122(4):425-30. [Epub ahead of print] PMID:24508912.

O’Neill MS, Osornio-Vargas A, Buxton MA, Sánchez BN, Rojas-Bracho L, Castillo-Castrejon M, Mordhukovich IB, Brown DG, Vadillo-Ortega F. (2013) “Air pollution, inflammation and preterm birth in Mexico City: Study design and methods.” *Sci Total Environ.*, 15(448): 79-83. (doi: 10.1016/j.scitotenv.2012.10.079. Epub 2012 Nov 21) PubMed PMID: 23177781; PubMed Central PMCID: PMC3594336.

White-Newsome, JL, Brines, SJ, Brown, DG, Dvonch, JT, Gronlund, CJ, Oswald, EM, Rood, RB, O’Neill, MS. 2013. “Validating satellite-derived land surface temperature with in-situ measurements: A public health perspective.” *Environmental Health Perspectives*, 121(8): 925-931. (Online 7 June 2013 <http://dx.doi.org/10.1289/ehp.1206176>).

Service: Professor O’Neill’s additional appointment has given her ample opportunity to serve on various EHS and EPID committees, including admissions, professional degree programs, doctoral, master’s, diversity, and student and alumni affairs. For the past two years, she chaired and now co-chairs the master’s committee in the Department of Epidemiology. She has participated actively in student recruiting and meeting with faculty candidates, in addition to

serving formally on three external faculty search committees. She has given guest lectures in multiple courses taught in the Departments of Environmental Health Sciences and Epidemiology as well as in the School of Environment and Natural Resources. Most recently, she was elected to serve on the executive committee for the School of Public Health. Nationally and internationally, she has served on the editorial board of *Environmental Health Perspectives*, has been a peer reviewer for multiple journals, served as councilor of the International Society for Environmental Epidemiology, and continues to participate in the governing activities of the society. Work has included service on the awards selection committee; abstract review and session chairing, and in securing financial support for two of the annual conferences (served as the PI of two R13 grants from NIEHS). She was a member of the Federal Advisory Committee for the 2014 National Climate Assessment, served on a workshop organizing committee for the National Academy of Sciences, and has participated in multiple grant reviews.

External Reviewers:

Reviewer A: “She has been extremely productive with 86 peer-reviewed papers. She has served on a number of national advisory committees and has received citations for these activities. I would say she has established a national and international reputation as an environmental epidemiologist, with particular interest in climate change and health and in air pollution health effects.”

Reviewer B: “Dr. O’Neill has established herself as an outstanding, highly productive researcher. Her studies on temperature and air pollution data and their effects on health outcomes in epidemiology studies is outstanding and will be influential as we adapt to the changing climate, and how it may influence population health, including cardiovascular and birth outcomes.”

Reviewer C: “Dr. O’Neill has conducted original research...related to an internet based heat evaluation and assessment tool and she has worked on the development of ‘vulnerability maps.’ Both of these methodologies demonstrate considerable innovation and leadership in engaging multi-disciplinary teams to undertake this cutting-edge research. It should not be overlooked that she currently has (and has had in the past) multiple funding sources...that has enabled her research to flourish and to take on pioneering ideas.”

Reviewer D: “She has made significant contributions on the topic of air pollution including cardiovascular mechanisms underlying air pollution and health associations, asthma, and the effect of air pollution on birth outcomes. She continues to contribute to the greater health equity by focusing on vulnerable populations and issues of social justice, including disparities in heat-related impacts.”

Reviewer E: “With regard to Dr. O’Neill’s standing, I would place her among the emerging group of leaders in environmental epidemiology. She has established independence as a researcher and has authored publications on key societal issues, including socioeconomic disparities, climate change and health effects of air pollution. Her accomplishments over a still brief career are notable.”

Summary of Recommendation:

Professor O'Neill is a leading researcher in her field and contributes significantly to our understanding of the molecular epidemiology of air pollution impacts on cardiovascular disease and prematurity and the epidemiology of heat stress and other weather-related impacts on health. Moreover, her areas of scholarship continue to be pivotal in attracting the best Ph.D. students and new faculty in the Epidemiology and EHS departments. It is with the support of the School of Public Health Executive Committee that I recommend Marie S. O'Neill for promotion to professor of environmental health sciences, with tenure, Department of Environmental Health Sciences, and professor of epidemiology, with tenure, Department of Epidemiology, School of Public Health.

A handwritten signature in black ink, appearing to read 'M. Philbert', written over a horizontal line.

Martin A. Philbert, Ph.D.
Dean, School of Public Health

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