XIAO WU

Date of Preparation: February 20, 2024
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ACADEMIC APPOINTMENTS

Columbia University Mailman School of Public Health *New York, NY*
Assistant Professor of Biostatistics *01/2023 - present*

EDUCATION

Harvard University *Cambridge, MA*
Ph.D., Biostatistics *09/2017 - 03/2021*
Dissertation: Causal Inference with Complex Exposures in Observational Studies
Committee: Dr. Francesca Dominici, Dr. Jose R. Zubizarreta, Dr. Danielle Braun

Harvard T.H. Chan School of Public Health *Boston, MA*
M.S., Biostatistics *09/2015 - 05/2017*

Peking University *Beijing, China*
LL.B., Laws *09/2011 - 07/2015*
B.S., Mathematics *09/2011 - 07/2015*

ACADEMIC TRAINING

Stanford University *Stanford, CA*
Data Science Postdoctoral Fellow; Mentor: Dr. Trevor J. Hastie *10/2021 - 12/2022*

Harvard T.H. Chan School of Public Health *Boston, MA*
Postdoctoral Researcher; Mentor: Dr. Francesca Dominici *03/2021 - 09/2021*

Harvard T.H. Chan School of Public Health *Boston, MA*
Predoctoral Researcher; Mentor: Dr. Francesca Dominici *06/2017 - 10/2020*

Harvard Business School *Boston, MA*
Research Associate; Mentor: Dr. Lauren Cohen *07/2016 - 03/2017*

Stanford University School of Medicine *Stanford, CA*
Statistical Researcher; Mentor: Dr. Ying Lu *06/2014 - 08/2014*

OTHER PROFESSIONAL TRAINING

Facebook Inc *Menlo Park, CA*
Research Scientist Intern; Mentors: Drs. Abbas Zaidi, Will Bullock *06/2020 - 08/2020*

Google LLC *Sunnyvale, CA*
Data Scientist Intern; Mentors: Drs. Li Pan, Meeyoung Park *05/2019 - 08/2019*

Sanofi Genzyme *Cambridge, MA*
Biostatistician Intern; Mentor: Dr. Yi Xu *06/2017 - 08/2017, 02/2019 - 05/2019*

Peking University Clinical Research Institute *Beijing, China*
Data Analyst; Mentor: Prof. Chen Yao *02/2014 - 06/2014*

HONORS & AWARDS

Forbes 30 Under 30 - Healthcare *2022*
Forbes Magazine

Stanford Data Science Fellowship *2021*
Stanford Data Science

Barry R. and Irene Tilenius Bloom Fellowship *2021*
Harvard T.H. Chan School of Public Health

IMS Hannan Graduate Student Travel Award *2020*
Institute of Mathematical Statistics

American Statistical Association Scholarship Award *2020*
ASA Biopharmaceutical Section

ISEE Annual Conference Travel Award *2020*
International Society for Environmental Epidemiology

American Statistical Association Student Paper Award *2019*
ASA Statistics and the Environment Section

American Statistical Association Student Travel Award *2019*
ASA Biopharmaceutical Section Regulatory-Industry Statistics Workshop

Summer Institute in Statistics for Big Data Scholarship *2017*
University of Washington

1st Prize of the National Mathematics Contest *2009*
The Chinese Mathematical Society (CMS)

ADMINISTRATIVE LEADERSHIP AND ACADEMIC SERVICE

Academic Service

Member, Faculty Recruitment Advisory Committee *2023-present*
Member, Master's Admission Committee *2023-present*
Member, Curriculum Committee *2023-present*
Member, Student and Faculty Award Committee *2023*

PROFESSIONAL ORGANIZATIONS, SOCIETIES, AND MEMBERSHIP

Memberships and Positions

Member, Columbia Data Science Institute *2023-present*
Member, NIEHS Center for Environmental Health and Justice in Northern Manhattan *2023-present*
Member, Society for Causal Inference (SCI) *2022-present*
Member, Institute of Mathematical Statistics (IMS) *2020-present*
Member, American Statistical Association (ASA) *2013-present*
Member, International Chinese Statistical Association (ICSA) *2023-present*

Grant Reviewer

The Tel Aviv University Center for Combating Pandemics Research Grants *2020*

Journal Reviewer

Science; Journal of the American Medical Association (JAMA); Journal of the American Statistical Association (JASA); Biometrics; Statistics in Medicine; Statistical Sinica; Journal of Agricultural, Biological, and Environmental Statistics; International Journal of Biostatistics; Clinical Trials; American Journal of Respiratory and Critical Care Medicine (AJRCCM); American Journal of Preventive Medicine; American Journal of Epidemiology; Environmental Health Perspectives; Environmental International; Atmospheric Environment; The Innovation

Expert Mentor
MIT COVID-19 Datathon *2020*

Session Chair
Recent Advances in Nonparametric Statistical Methods, Joint Statistical Meeting (JSM) *2018*

Biostatistics Consultant
Biostatistics Student Consulting Center, Harvard T.H. Chan School of Public Health *2018-2019*

Legal Consultant
Legal Aid Association, Peking University Law School *2015*

FELLOWSHIP AND GRANT SUPPORT

Active Research Funding

1. NIEHS P30 ES009089 Pilot Fund *07/2023-06/2024*
   Long-term effects of tropical cyclones on community social vulnerability and individual chronic health conditions in the United States: A novel quasi-experimental study *Role: PI*

Pending Funding

1. NIEHS K01 Transition to Independent Career Award *2025-2028*
   Role: PI
2. NIH P20 Climate Change and Health Research Center Development *2024-2027*
   Role: Project Co-Lead & Co-I (PI: Kioumourtzoglou)
3. NIEHS R01 ES035767-01 Grant *2024-2028*
   Role: Subcontract PI (PI: Volckens)
4. Chan Zuckerberg Initiative (CZI) Essential Open Source Software for Science *2024-2026*
   Role: Subcontract PI (PI: Braun)

EDUCATIONAL CONTRIBUTIONS

Direct Teaching
Stanford University School of Medicine *Stanford, CA*
Guest Lecturer, Causal Inference in Clinical Trials and Observational Study *05/2022*

Emory Rollins School of Public Health *Atlanta, GA*
Guest Lecturer, Causal Inference and Its Application to Environmental Studies with R *03/2022*
Guest Lecturer, Air Quality in the Urban Environment *03/2021*

Massachusetts Institute of Technology *Cambridge, MA*
Guest Lecturer, Global Health Informatics to Improve Quality of Care *03/2021*

Harvard Medical School *Boston, MA*
Guest Lecturer, An Introduction to Propensity Score Methods *09/2018*

Harvard T.H. Chan School of Public Health *Boston, MA*
Teaching Fellow, Bayesian Methodology in Biostatistics *Spring 2020*
Teaching Fellow, Theory and Methods for Causality II *Fall 2019*
Teaching Fellow, Introduction to Statistical Genetics *Fall 2019*
Guest Lecturer, Computing for Big Data - Working with Medicare Data *December 2018*
Teaching Fellow, Applied Bayesian Analysis *Fall 2018*
Teaching Fellow, Applied Survival Analysis *Spring 2017*

Advising and Mentorship
Postdoctoral Fellows

Emma Amissah, Ph.D., Columbia University *08/2023 - present*
***Mentor of NIH K99/R00 Award Application**

Ph.D. Students

Vivian Do, Columbia University *09/2023 - present*
***Mentor of NIH F31 Predoctoral Fellowship (Awarded)**
Ting-Hsuan Chang, Columbia University *09/2023 - present*
Yanran Li, Columbia University *06/2023 - present*

Master Students

Shaohan Chen, Columbia University *11/2023 - present*
Yining Chen, Columbia University *11/2023 - present*
Hongpu Min, Columbia University *11/2023 - present*
Youlan Shen, Columbia University *11/2023 - present*
Ziyue Yang, Columbia University *11/2023 - present*
Yuhan Wang, Columbia University *06/2023 - present*
Lincole Jiang, Columbia University *06/2023 - present*
Xicheng Xie, Columbia University *06/2023 - present*

Bachelor Students

Yihui He, Peking University *06/2022 - present*
Sophie Woodward, Harvard College *04/2021 - 12/2022*
***Bachelor Degree Awarded (*Summa cum laude*) in 2022, now Ph.D. student, Harvard University**
Zhewen Hou, Peking University *04/2020 - 03/2021*
***Bachelor Degree Awarded in 2021, now Ph.D. student, Columbia University**
Josh Villarreal, Harvard College *05/2020 - 08/2020*

TECHNICAL SKILLS

Programming Languages	R, Python, SAS, SQL
Software & Tools	Tensorflow, Stan, R Studio, Matlab, Github, Latex
Certificates	SAS Base and Advanced Programming

PUBLICATIONS

Journal Articles

1. **Wu, X.**, Sverdrup, E., Mastrandrea, M.D., Wara, M.W. and Wager, S., 2023. Low-intensity fires mitigate the risk of high-intensity wildfires in Californias forests. Science Advances, 9(45), p.eadi4123.

2. Josey, K.P., Delaney, S.W., **Wu, X.**, Nethery, R.C., DeSouza, P., Braun, D. and Dominici, F., 2023. Air pollution and mortality at the intersection of race and social class. New England Journal of Medicine.
   *** National Institute of Environmental Health Sciences Paper of the Year in 2023**

3. **Wu, X.**, Weinberger, K.R., Wellenius, G.A., Dominici, F. and Braun, D., 2023. Assessing the causal effects of a stochastic intervention in time series data: are heat alerts effective in preventing deaths and hospitalizations?. Biostatistics, p.kxad002.

4. Chen, J., Braun, D., Christidis, T., Cork, M., Rodopoulou, S., Samoli, E., Stafoggia, M., Wolf, K., **Wu, X.**, Yuchi, W. and Andersen, Z.J., 2023. Long-Term Exposure to Low-Level and Mortality: Investigation of Heterogeneity by Harmonizing Analyses in Large Cohort Studies in Canada, United States, and Europe. Environmental Health Perspectives, 131(12), 127003.

5. Woodward, S.M., Mork, D., **Wu, X.**, Hou, Z., Braun, D. and Dominici, F., 2023. Combining aggregate and individual-level data to estimate individual-level associations between air pollution and COVID-19 mortality in the United States. PLOS Global Public Health, 3(8), p.e0002178.

6. Lee, W., **Wu, X.**, Heo, S., Kim, J.M., Fong, K.C., Son, J.Y., Sabath, M.B., Trisovic, A., Braun, D., Park, J.Y., Kim, Y.C., Lee, J.P., Schwartz, J., Kim, H., Dominici, F., Al-Aly, Z. and Bell, M.L. 2023. Air Pollution and Acute Kidney Injury in the U.S. Medicare Population: A Longitudinal Cohort Study. Environmental Health Perspectives, 131, 047008.

7. Josey, K.P., DeSouza, P., **Wu, X.**, Braun, D. and Nethery, R., 2023. Estimating a causal exposure response function with a continuous error-prone exposure: a study of fine particulate matter and all-cause mortality. Journal of Agricultural, Biological and Environmental Statistics, 28(1), pp.20-41.

8. Lee, W., Heo, S., Stewart, R., **Wu, X.**, Fong, K.C., Son, J.Y., Sabath, B., Braun, D., Park, J.Y., Kim, Y.C. and Lee, J.P., Schwartz, J., Kim, H., Dominici, F. and Bell, M.L. 2023. Associations between greenness and kidney disease in Massachusetts: The US Medicare longitudinal cohort study. Environment International, 173, p.107844.

9. Klompmaker, J.O., Laden, F., James, P., Sabath, M.B., **Wu, X.**, Dominici, F., Zanobetti, A. and Hart, J.E., 2023. Long-term exposure to summer specific humidity and cardiovascular disease hospitalizations in the US Medicare population. Environment international, 179, p.108182.

10. Klompmaker, J.O., Laden, F., James, P., Sabath, M.B., **Wu, X.**, Schwartz, J., Dominici, F., Zanobetti, A. and Hart, J.E., 2023. Effects of long-term average temperature on cardiovascular disease hospitalizations in an American elderly population. Environmental Research, 216, p.114684.

11. **Wu, X.**, Mealli, F., Kioumourtzoglou, M.A., Dominici, F. and Braun, D., 2022. Matching on generalized propensity scores with continuous exposures. Journal of the American Statistical Association, pp.1-29.
    *** Winner of American Statistical Association Student Paper Award in 2019**

12. Kodros, J.K., Bell, M.L., Dominici, F., LOrange, C., Godri Pollitt, K.J., Weichenthal, S., **Wu, X.** and Volckens, J., 2022. Unequal airborne exposure to toxic metals associated with race, ethnicity, and segregation in the USA. Nature Communications, 13(1), pp.1-10.
    *** National Institute of Environmental Health Sciences Paper of the Month in January 2023**

13. Armstrong-Carter, E., Fuligni, A.J., **Wu, X.**, Gonzales, N. and Telzer, E.H., 2022. A 28-day, 2-year study reveals that adolescents are more fatigued and distressed on days with greater NO2 and CO air pollution. Scientific reports, 12(1), pp.1-10.

14. Lee, W., **Wu, X.**, Heo, S., Fong, K.C., Son, J.Y., Sabath, M.B., Braun, D., Park, J.Y., Kim, Y.C., Lee, J.P. and Schwartz, J., 2022. Associations between long term air pollution exposure and first hospital admission for kidney and total urinary system diseases in the US Medicare population: nationwide longitudinal cohort study. BMJ Medicine, 1(1).

15. Dominici, F., Zanobetti, A., Schwartz, J., Braun, D., Sabath, B.M., and **Wu, X.**, 2022. Assessing adverse health effects of long-term exposure to low levels of ambient air pollution: Implementation of causal inference methods. Research Reports: Health Effects Institute.

16. Yates, E.F., Zhang, K., Naus, A., Forbes, C., **Wu, X.**, and Dey, T., 2022. A review on the biological, epidemiological, and statistical relevance of COVID-19 paired with air pollution. Environmental Advances, p.100250.

17. Yao, Y., Lv, X., Qiu, C., Li, J., **Wu, X.**, Zhang, H., Yue, D., Liu, K., Eshak, E.S., Lorenz, T. and Anstey, K.J., 2022. The effect of China's Clean Air Act on cognitive function in older adults: a population-based, quasi-experimental study. The Lancet Healthy Longevity, 3(2), pp.e98-e108.

18. Xiong, J., Li, J., **Wu, X.**, Wolfson, J.M., Lawrence, J., Stern, R.A., Koutrakis, P., Wei, J. and Huang, S., 2022. The association between daily-diagnosed COVID-19 morbidity and short-term

exposure to PM1 is larger than associations with PM2.5 and PM10. Environmental research, p.113016.

19. Mendy, A., **Wu, X.**, Keller, J.L., Fassler, C.S., Apewokin, S., Mersha, T.B., Xie, C. and Pinney, S.M., 2021. Air pollution and the pandemic: Long-term PM2.5 exposure and disease severity in COVID19 patients. Respirology, 26(12), pp.1181-1187.

20. Weinberger, K.R., **Wu, X.**, Sun, S., Spangler, K.R., Nori-Sarma, A., Schwartz, J., Requia, W., Sabath, B.M., Braun, D., Zanobetti, A., Dominici, F. and Wellenius, G.A., 2021. Heat warnings, mortality, and hospital admissions among older adults in the United States. Environment International, 157, p.106834.

21. Klompmaker, J.O., Hart, J.E., James, P., Sabath, M.B., **Wu, X.**, Zanobetti, A., Dominici, F. and Laden, F., 2021. Air pollution and cardiovascular disease hospitalization - Are associations modified by greenness, temperature and humidity?. Environment International, 156, p.106715.

22. Field, R.D., Moelis, N., Salzman, J., Bax, A., Ausiello, D., Woodward, S.M., **Wu, X.**, Dominici, F. and Edwards, D.A., 2021. Inhaled water and salt suppress respiratory droplet generation and COVID-19 incidence and death on US coastlines. Molecular Frontiers Journal, pp.1-13.

23. Klompmaker, J.O., Hart, J.E., Holland, I., Sabath, M.B., **Wu, X.**, Laden, F., Dominici, F. and James, P., 2021. County-level exposures to greenness and associations with COVID-19 incidence and mortality in the United States. Environmental research, p.111331.

24. Mendy, A., **Wu, X.**, Keller, J.L., Fassler, C.S., Apewokin, S., Mersha, T.B., Xie, C. and Pinney, S.M., 2021. Long-term exposure to fine particulate matter and hospitalization in COVID-19 patients. Respiratory medicine, 178, p.106313.

25. **Wu, X.**†, Nethery, R.C.†, Sabath, B.M., Braun, D. and Dominici, F., 2020. Air pollution and COVID-19 mortality in the United States: Strengths and limitations of an ecological regression analysis. Science Advances, 6(45), p.eabd4049.

26. **Wu, X.**†, Braun, D.†, Schwartz, J., Kioumourtzoglou, M.A. and Dominici, F., 2020. Evaluating the impact of long-term exposure to fine particulate matter on mortality among the elderly. Science Advances, 6(29), p.eaba5692.

27. Shi, L.†, **Wu, X.**†, Yazdi, M., Braun, D., Liu, P., Awad, Y., Di, Q., Wei, Y., Wang, Y., Schwartz, J.D., Dominici, F., Kioumourtzoglou, M.A. and Zanobetti, A., 2020. Long-term effects of PM2.5 on neurological disorders in the American Medicare population: a longitudinal cohort study. The Lancet Planetary Health, 4(12), pp.e557-e565.
*** Runner-up of China Health Policy and Management Society (CHPAMS) Rising Scholar Best Paper Award in 2020**

28. **Wu, X.**, Xu, Y. and Carlin, B.P., 2020. Optimizing interim analysis timing for Bayesian adaptive commensurate designs. Statistics in Medicine, 39(4), pp.424-437.
*** Winner of American Statistical Association Student Poster Award in 2019**

29. Wei, Y., Wang, Y., **Wu, X.**, Di, Q., Shi, L., Koutrakis, P., Zanobetti, A., Dominici, F. and Schwartz, J.D., 2020. Causal effects of air pollution on mortality in Massachusetts. American Journal of Epidemiology, 189(11), pp.1316-1323.

30. Zhang, Z., Li, X., **Wu, X.**, Qiu, H. and Shi, H., 2020. Propensity score analysis for time-dependent exposure. Annals of Transnational Medicine, 8(5).

31. **Wu, X.**, Braun, D., Kioumourtzoglou, M.A., Choirat, C., Di, Q. and Dominici, F., 2019. Causal inference in the context of an error prone exposure: air pollution and mortality. The Annals of Applied Statistics, 13(1), pp.520-547.

32. Won, J.H., **Wu, X.**, Lee, S.H. and Lu, Y., 2017. Cross-sectional design with a short-term follow-up for prognostic imaging biomarkers. Computational Statistics & Data Analysis, 113, pp.154-176.

Submitted Manuscripts

1. Khoshnevis, N., **Wu, X.** and Braun, D., 2023. CausalGPS: An R Package for Causal Inference With Continuous Exposures. arXiv preprint arXiv:2310.00561.
2. Merlo, L., Dominici, F., Petrella, L., Salvati, N. and **Wu, X.**, 2023. Estimating causal quantile exposure response functions via matching. arXiv preprint arXiv:2308.01628.
3. Lee, J.J., **Wu, X.**, Dominici, F. and Nethery, R.C., 2023. Causal exposure-response curve estimation with surrogate confounders: a study of air pollution and children's health in Medicaid claims data. arXiv preprint arXiv:2308.00812.
4. Ren, B., **Wu, X.**, Braun, D., Pillai, N. and Dominici, F., 2021. Bayesian modeling for exposure response curve via Gaussian processes: Causal effects of exposure to air pollution on health outcomes. arXiv preprint arXiv:2105.03454. *revision invited* at The Annals of Applied Statistics.

†indicates co-first authorship

PRESENTATIONS

Conference Presentations

1. Low-intensity Fires Mitigate the Risk of High-intensity Wildfires in Californias Forests, NIEHS Environmental Health Science Core Centers (EHSCC) Annual Meeting, 2023, Houston, TX (**Invited**).
2. Balancing Covariates via Weighted Independence Measures for Continuous Exposures, Joint Statistical Meeting (JSM), 2023, Toronto, ON, Canada.
3. Institute of Mathematical Statistics (IMS) New Researchers Conference (NRC) in Statistics and Probability, 2023, Toronto, ON, Canada (**Invited**).
4. Balancing Covariates via Weighted Independence Measures for Continuous Exposures, American Causal Inference Conference (ACIC), 2023, Austin, TX (**Poster**).
5. Data Science and Environmental Science, New England Statistical Society (NESS) NextGen Data Science Day, 2022 (**Panel Discussant**).
6. Causal Inference Methods in Air Pollution Research, Joint Statistical Meeting (JSM), 2022, Washington, D.C.
7. Harmonized Causal Inference Analyses in MAPLE, ELAPSE and Medicare Cohorts, Health Effects Institute (HEI) Annual Conference, 2022, Washington, D.C. (**Poster**).
8. Air pollution and COVID-19 mortality in the United States, Stanford Data Science Inaugural Conference, 2022, Stanford, CA (**Poster**).
9. The Intersection between Air Quality and COVID-19 Disease, American Thoracic Society (ATS) International Conference, 2021 (**Panel Discussant**).
10. Exposure to Air Pollution and COVID-19 Mortality in the United Sates, Annual Conference of the International Society for Environmental Epidemiology (ISEE), 2020, Washington, D.C. (**Oral**).
11. Impacts of Long-term Exposure to Fine Particulate Matter on Mortality Among the Elderly, Annual Conference of the International Society for Environmental Epidemiology (ISEE), 2020, Washington, D.C. (**E-Poster**).
12. Causal effects of long-term $PM_{2.5}$ exposure on all cause mortality, Harvard Data Science Initiative Conference, 2019, Boston, MA.

13. Optimizing Interim Analysis Timing for Bayesian Adaptive Commensurate Designs, ASA Biopharmaceutical Section Regulatory-Industry Statistics Workshop (BIOP), 2019, Washington, D.C. (**Poster**).

14. Matching on generalized propensity scores with continuous treatments, Joint Statistical Meeting (JSM), 2019, Denver, CO.

15. Matching on generalized propensity scores with continuous treatments, Atlantic Causal Inference Conference (ACIC), 2019, Montreal, QC, Canada (**Invited**).

16. Causal Inference Challenges in Air Pollution Research, Atlantic Causal Inference Conference (ACIC), 2019, Montreal, QC, Canada (**Discussant**).

17. Statistical methods for pooling categorical biomarkers from multiple studies, Joint Statistical Meeting (JSM), 2018, Vancouver, BC, Canada.

18. Causal inference in air pollution epidemiology using generalized propensity score matching, Harvard/MIT ACE Center Science Advisory Committee (SAC) Meeting, 2018, Boston, MA (**Invited**).

19. Matching on generalized propensity scores with continuous treatments, European Causal Inference Meeting (EuroCIM), 2018, Florence, Italy.

20. Causal inference in the context of an error prone exposure: air pollution and mortality, International Chinese Statistical Association (ICSA), Applied Statistics Symposium, 2018, New Brunswick, NJ (**Invited**).

21. Causal inference in the context of an error prone exposure: air pollution and mortality, Eastern North American Region (ENAR) International Biometric Society Meeting, 2018, Atlanta, GA.

22. Methods to estimate causal effects adjusting for confounding when an ordinal exposure is mismeasured in the context of air pollution, Harvard/MIT ACE Center Science Advisory Committee (SAC) Meeting, 2017, Boston, MA (**Invited**).

Invited Presentations

1. The Role of Causal Inference for Evaluating the Impact of Extreme Climate Events. Columbia Data Science for Public Health Summit, 2024.

2. Low-intensity Fires Mitigate the Risk of High-intensity Wildfires in Californias Forests. Columbia Biostatistics Annual Research Symposium (CBARS), 2023.

3. Assessing the Causal Effects of a Stochastic Intervention in Time Series Data. Icahn School of Medicine at Mount Sinai, 2023.

4. Assessing the Causal Effects of a Stochastic Intervention in Time Series Data. The National Institute for Research in Digital Science and Technology (Inria), 2022.

5. Air Pollution, COVID-19 Pandemic, and Human Health: Statistical Applications of Causal Inference. Peking University School of Public Health, 2022.

6. Assessing the Causal Effects of a Stochastic Intervention in Time Series Data. Columbia University Mailman School of Public Health, 2022.

7. Causal Inference with Complex Exposures in Climate and Health Research. Boston University School of Public Health, 2022.

8. Causal Inference with Complex Exposures in Climate and Health Research. Columbia University Mailman School of Public Health, 2021.

9. Air Pollution, COVID-19 Pandemic, and Human Health: Connecting the Science with Statistics and Causal Inference. The Center for Statistical Science at Peking University, 2020.

10. Pulmonary Health, ARDS, COVID-19 and Air Pollution: Connecting the Science. The Collaborative on Health and the Environment (CHE), 2020.

11. Air Pollution, Covid-19, and Communities of Color: What We Can Do About It. MetroWest Climate Solutions, 2020.

12. Historical Exposure to Air Pollution and COVID-19 Mortality in the United Sates. All-Party Parliamentary Group (APPG) on Air Pollution, 2020, London, U.K.

13. Historical Exposure to Air Pollution and COVID-19 Mortality in the United Sates. The U.S. House Select Committee on the Climate Crisis, 2020, Washington, D.C.

14. Coronavirus Tracking Project for Rapid-prototyping Response. MIT Center for Bits and Atoms, 2020, Cambridge, MA.

15. Harvard Public Health Symposium for Young Leaders in China. Harvard T.H. Chan School of Public Health, 2019, Boston, MA.