

# Md Mostafijur Rahman, PhD, MS

## Office Address:

Department of Environmental Health Sciences  
School of Public Health and Tropical Medicine  
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New Orleans, LA 70112

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[Faculty website](#)

## EDUCATION

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- 10/2012**      **BS**      **Mechanical Engineering,**  
Rajshahi University of Engineering and Technology, Bangladesh
- 05/2018**      **MS**      **Environmental Health Sciences,**  
New York University School of Medicine, New York, USA
- MS Thesis:* “Recent spatial gradients and time trends in Dhaka, Bangladesh, air pollution and their human health implications”  
*Advisor:* George D. Thurston, Sc.D.
- 08/2020**      **PhD**      **Environmental Health Sciences,**  
New York University School of Medicine, New York, USA
- Doctoral Dissertation:* “Outdoor PM<sub>2.5</sub> Mass and Chemical Component Associations with Daily Cardiovascular and Respiratory Medical Visits and Mortality in Dhaka, Bangladesh”  
*Advisor:* George D. Thurston, Sc.D.

## POSTDOCTORAL TRAINING

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<u>Date</u>	<u>Institution</u>	<u>Area of research</u>
10/2020 – 08/2023	University of Southern California, Department of Population and Public Health Sciences	Environmental epidemiology focused on air pollution and climate change health effects <i>Mentor:</i> Rob McConnell, MD

## PROFESSIONAL EXPERIENCE

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- 09/2023 – Present**      **Assistant Professor (Tenure-Track),**  
Department of Environmental Health Sciences  
Tulane University School of Public Health and Tropical Medicine,  
New Orleans, LA, USA
- 09/2016 – 08/2020**      **Graduate Research Assistant,**  
New York University Langone Medical Center, New York, NY, USA
- 12/2014 – 07/2016**      **Executive, Engineering (Utility)**  
SQAURE Pharmaceuticals Limited, Dhaka, Bangladesh

## HONORS AND AWARDS

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- 2022      **Designated as Emerging Investigator**  
American Journal of Respiratory and Critical Care Medicine (aka, 'Blue Journal)
- 2022      **Student and Trainee Award**  
International Society for Autism Research (INSAR)
- 2019      **Best Poster Award**  
NYC Epidemiology Forum Meeting
- 2019      **NYU GSAS Dean's Travel Award**
- 2018      **NYU GSAS Dean's Travel Award**
- 2018      **Dr. Morton Lippmann Scholarship Award**  
The American Industrial Hygiene Association (AIHA)

## PEER-REVIEWED PUBLICATIONS

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† Corresponding Author; • Mentee

- 2023**    1. Yu X<sup>•</sup>, **Rahman MM**, Carter S, Shu YH, Chow T, Lurmann FW, Yu X, Martinez MP, Eckel SP, Chen JC, Chen Z, Levitt P, Schwartz J, McConnell R, Xiang AH. "Neighborhood Socioeconomic Context and Autism Spectrum Disorder" (**In press in JAMA Psychiatry**)
2. Yu X<sup>•</sup>, **Rahman MM**, Chen JC, Zhuang Z, Chow T, Carter S, Lurmann FW, Shu YH, Martinez MP, Eckel SP, Chen Z, Levitt P, Schwartz J, Chen JC, McConnell R, Xiang AH. 2023. Prenatal Air Pollution, Maternal Immune Activation, and Autism Spectrum Disorders. *Environment International*. 179, 108148. <https://doi.org/https://doi.org/10.1016/j.envint.2023.108148>
3. Carter SA, **Rahman MM**, Lin JC, Chow T, Yu X, Martinez MP, Levitt P, Chen Z, Chen JC, Rud D, Lewinger JP, Eckel SP, Schwartz J, Lurmann F, Kleeman MJ, McConnell R, Xiang AH. 2023. Maternal exposure to aircraft emitted ultrafine particles during pregnancy and likelihood of ASD in children. *Environment International*. 2023; <https://doi.org/10.1016/j.envint.2023.108061>.
- \*Co-first author
4. Jabin N, **Rahman MM**, Salam MT, Sharna TI, Franklin M, Bailey M, Alderete TL, Ahmed A, Quaiyum QA, Islam T. 2023. Cohort profile: Bangladesh Cook Stove Pregnancy Cohort Study (CSPCS). *BMJ Open* 2023;13:e068539. doi: 10.1136/bmjopen-2022-068539
5. Palinkas LA, De Leon J, Yu K, Salinas E, Fernandez C, Johnston J, **Rahman MM**, Silva SJ, Hurlburt M, McConnell RS, Garcia E. 2023. Adaptation Resources and Responses to Wildfire Smoke and Other Forms of Air Pollution in Low-Income Urban Settings: A Mixed-Methods Study. *International Journal of Environmental Research and Public Health*. 2023; 20(7):5393. <https://doi.org/10.3390/ijerph20075393>
6. **Rahman MM**<sup>\*</sup>, Lorenzo M<sup>•</sup>, Ban-Weiss G, Hasan Z, Azzouz M, Eckel SP, Conti D, Lurmann FW, Schlaerth H, Johnston J, Ko J, Palinkas L, Hurlburt M, Silva M, Gauderman W, McConnell R, Garcia E. 2023. Ambient temperature and air pollution associations with suicide and homicide mortality in California: A statewide case-crossover study. *Science of the Total Environment* 874:162462; doi:<https://doi.org/10.1016/j.scitotenv.2023.162462>.
- \*Co-first author
7. **Rahman MM**, Carter SA, Lin JC, Chow T, Yu X, Martinez MP, Levitt P, Chen Z, Chen JC, Rud D, Lewinger JP, Eckel SP, Schwartz J, Lurmann F, Kleeman MJ, McConnell R, Xiang AH. 2023.

Prenatal Exposure to Tailpipe and Non-Tailpipe Tracers of Particulate Matter Pollution and Autism Spectrum Disorders. *Environment International*. 2023 Jan 5;171:107736. doi: 10.1016/j.envint.2023.107736.

- 2022 8. **Rahman MM**, Carter SA, Lin JC, Chow T, Yu X, Martinez MP, Chen Z, Chen JC, Rud D, Lewinger JP, van Donkelaar A, Martin RV, Eckel SP, Schwartz J, Lurmann F, Kleeman MJ, McConnell R, Xiang AH. 2022. Associations of Autism Spectrum Disorder with PM<sub>2.5</sub> Components: A Comparative Study Using Two Different Exposure Models. *Environmental Science & Technology*. 2022 Dec 22. doi: 10.1021/acs.est.2c05197.
9. Carter SA, Lin JC, Chow T, Yu X, **Rahman MM**, Martinez MP, Feldman K, Eckel SP, Chen JC, Chen Z, Levitt P, Lurmann FW, McConnell R, Xiang AH. 2022. Maternal obesity, diabetes, preeclampsia, and asthma during pregnancy and likelihood of autism spectrum disorder with gastrointestinal disturbances in offspring. *Autism*. 2022 Sep 4:13623613221118430. doi: 10.1177/13623613221118430.
10. Palinkas LA, Hurlburt MS, Fernandez C, De Leon J, Yu K, Salinas E, Garcia E, Johnston J, **Rahman MM**, Silva SJ, McConnell RS. 2022. Vulnerable, Resilient, or Both? A Qualitative Study of Adaptation Resources and Behaviors to Heat Waves and Health Outcomes of Low-Income Residents of Urban Heat Islands. *International Journal of Environmental Research and Public Health*. 2022 Aug 29; 19(17):11090. <https://doi.org/10.3390/ijerph191711090>
11. **Rahman MM**, McConnell R, Schlaerth H, Ko J, Silva S, Lurmann FW, Palinkas L, Johnston J, Hurlburt M, Yin H, Ban-Weiss G, Garcia E. 2022. The Effects of Co-Exposure to Extremes of Heat and Particulate Air Pollution on Mortality in California: Implications for Climate Change. *American Journal of Respiratory Critical Care Medicine*. 2022 Jun 21. doi: 10.1164/rccm.202204-0657OC
- Accompanied by Editorial: “Heatwaves and Air Pollution – A Deadly Combination” By Drs. Patrick Kinney and Kent Pinkerton
12. **Rahman MM**, Shu YH, Chow T, Lurmann FW, Yu X, Martinez MP, Carter SA, Eckel SP, Chen JC, Chen Z, Levitt P, Schwartz J, McConnell R, Xiang AH. 2022. Prenatal Exposure to Air Pollution and Autism Spectrum Disorder: Sensitive Windows of Exposure and Sex Differences. *Environmental Health Perspective* Jan;130(1):17008. doi: 10.1289/EHP9509.
- Accompanied by Editorial: “Air Pollution and Autism Spectrum Disorder: Are We There Yet?” By Drs. Raanan Raz and Youssef Oulhote
13. **Rahman MM**<sup>†</sup>, Garcia E, Lim CC, Ghazipura M, Alam N, Palinkas LA, McConnell R, Thurston GD. 2022. Temperature variability associations with cardiovascular and respiratory emergency department visits in Dhaka, Bangladesh. *Environment International* 164:107267; doi:<https://doi.org/10.1016/j.envint.2022.107267>.
14. **Rahman MM**<sup>†</sup>, Thurston GD. 2022. A hybrid satellite and land use regression model of source-specific PM<sub>2.5</sub> and PM<sub>2.5</sub> constituents. *Environment International*. 2022 May;163:107233. doi: 10.1016/j.envint.2022.107233.
15. **Rahman MM**, Liu FF, Eckel SP, McConnell R. 2022. Near-roadway air pollution, immune cells and adipokines among obese young adults. *Environmental Health* 21, 36 (2022). <https://doi.org/10.1186/s12940-022-00842-2>
16. Yu X<sup>\*</sup>, **Rahman MM**, Wang Z, Carter SA, Schwartz J, Chen Z, Eckel SP, Hackman D, Chen JC, Xiang AH, McConnell R. 2022. Evidence of susceptibility to autism risks associated with early life ambient air pollution: A systematic review. *Environmental Research*. 2022 May 15;208:112590. doi: 10.1016/j.envres.2021.112590

17. Jabin N, Salam MT, **Rahman MM**, Sharna TI, Franklin M, Ahmed A, Quaiyum MA, Islam T. 2022. Social inequality influences the impact of household air pollution on birth outcomes. *Science of Total Environment*. Jan 29;822:153405. doi: 10.1016/j.scitotenv.2022.153405
- 2021** 18. **Rahman MM**<sup>†</sup>, Begum BA, Hopke PK, Nahar K, Newman J, Thurston GD. 2021. Cardiovascular morbidity and mortality associations with biomass- and fossil-fuel-combustion fine-particulate-matter exposures in Dhaka, Bangladesh. *International Journal of Epidemiology* 1–12; doi:10.1093/ije/dyab037.
19. **Rahman MM**<sup>†</sup>, Nahar K, Begum BA, Hopke PK, Thurston GD. 2021. Respiratory Emergency Department Visits Associations with Exposures to PM<sub>2.5</sub> Mass, Constituents, and Sources in Dhaka, Bangladesh Air Pollution. *Annals of American Thoracic Society*; doi:10.1513/AnnalsATS.202103-252OC.
20. Carter SA<sup>•</sup>, **Rahman MM**, Lin JC, Shu YH, Chow T, Yu X, Martinez MP, Eckel SP, Chen JC, Chen Z, Schwartz J, Pavlovic N, Lurmann FW, McConnell R, Xiang AH. 2021. In utero exposure to near-roadway air pollution and autism spectrum disorder in children. *Environment International* Oct 6;158:106898. doi: 10.1016/j.envint.2021.106898.
- 2020** 21. **Rahman MM**<sup>†</sup>, Begum BA, Hopke PK, Nahar K, Thurston GD. 2020. Assessing the PM<sub>2.5</sub> impact of biomass combustion in megacity Dhaka, Bangladesh. *Environmental Pollution* Sep;264:114798. doi: 10.1016/j.envpol.2020.114798.
22. Nahar K, **Rahman MM**, Raja A, Thurston GD, Gordon T. 2020. Exposure assessment of emissions from mobile food carts on New York City streets. *Environmental Pollution* Dec;267:115435. doi: 10.1016/j.envpol.2020.115435.
- 2019** 23. **Rahman MM**<sup>†</sup>, Mahamud S, Thurston GD. 2019. Recent spatial gradients and time trends in Dhaka, Bangladesh, air pollution and their human health implications. *Journal of Air Waste Management Association* Apr;69(4):478-501. doi: 10.1080/10962247.2018.1548388.

#### Under review:

1. **Rahman MM**, Franklin M, , Ahmed A, Quaiyum MA, Salam MT, Islam T. “Assessing Household Fine Particulate Matter (PM<sub>2.5</sub>) through Measurement and Modeling in the Bangladesh Cook Stove Pregnancy Cohort Study (CSPCS)” (revision under review in **Environmental Pollution**)
2. Hasan Z<sup>•</sup>, Azzouz M<sup>•</sup>, **Rahman MM**, Silva M, Palinkas LA, Hurlburt M, Sandrah Eckel, McConnell R, Garcia E” Modification of the heat effects on mortality by neighborhood level social disparities in California (**under review in JSEE**)

\*Hasan and Azzouz will establish joint first author

## ABSTRACTS & PRESENTATIONS

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### Poster Presentations:

1. **Rahman MM**, Lorenzo M, McConnell R; Lurmann FW, Palinkas L, Garcia E “The Effects of Heat and Air Pollution on Mental Health Related Mortality in California” ISEE Conference 2022. (Poster Presentation)
2. **Rahman MM**, Carter S, Shu YH, Chow T, Lurmann FW, Yu X, Martinez MP, Eckel SP, Chen JC, Chen Z, Levitt P, Schwartz J, McConnell R, Xiang AH “Prenatal Exposure to Tailpipe and Non-Tailpipe Particulate Matter Pollution and Autism Spectrum Disorders” ISEE Conference 2022. (Poster Presentation)

3. **Rahman MM**, Shu YH, Chow T, Lurmann FW, Yu X, Martinez MP, Eckel SP, Chen JC, Chen Z, Levitt P, Schwartz J, McConnell R, Xiang AH. “Prenatal Exposure to Particulate Matter Nitrate and Autism Spectrum Disorder” International Meeting for Autism Research (INSAR) Conference 2022. (Poster Presentation)
4. **Rahman MM**, Shu YH, Chow T, Lurmann FW, Yu X, Martinez MP, Eckel SP, Chen JC, Chen Z, Levitt P, Schwartz J, McConnell R, Xiang AH. “Prenatal Exposure to Air Pollution and Autism Spectrum Disorder: Sensitive Windows of Exposure and Sex Differences”. ISEE Conference 2021. (Poster Presentation)
5. Carter S, **Rahman MM**, Shu YH, Chow T, Lurmann FW, Yu X, Martinez MP, Eckel SP, Chen JC, Chen Z, Levitt P, Schwartz J, McConnell R, Xiang AH. “Prenatal exposure to near-roadway air pollution and autism spectrum disorders in children” ISEE Conference 2021. (Discussion)
6. Yu X, **Rahman MM**, Chen JC, Zhuang Z, Chow T, Carter S, Lurmann FW, Shu YH, Martinez MP, Eckel SP, Chen Z, Levitt P, Schwartz J, Chen JC, McConnell R, Xiang AH. “Prenatal Air Pollution, Maternal Immune Activation, and Autism Spectrum Disorders” ISEE Conference 2021 (Discussion)
7. **Rahman MM**, Begum BA, Hopke PK, Thurston GD “Acute Effects of Ambient Fine Particle Air Pollution and its Constituents on Cardiovascular Emergency Department Visits, Hospitalizations, and Mortality in Dhaka, Bangladesh”, APHA Conference 2019. (Poster Presentation)

### **Oral Presentation:**

8. **Rahman MM**, McConnell R, Schlaerth H, Ko J, Silva S, Lurmann FW, Erika G. The Effects of Co-Exposure to Extremes of Heat and Particulate Air Pollution on Mortality in California: Implications for Climate Change. ISEE Conference 2022. (Oral Presentation)
9. **Rahman MM**, Shu YH, Chow T, Lurmann FW, Yu X, Martinez MP, Eckel SP, Chen JC, Chen Z, Levitt P, Schwartz J, McConnell R, Xiang AH. “Prenatal Exposure to Air Pollution and Children's Autism Spectrum Disorder” International Meeting for Autism Research (INSAR) Conference 2021. (Oral Presentation)
10. **Rahman MM**, Begum BA, Hopke PK, Thurston GD “The Impact of Fossil-Fuels and Biomass Combustion on Outdoor PM2.5 Mass Associations with Respiratory Emergency Department Visits in Dhaka, Bangladesh” ISEE Conference 2020. (Oral Presentation)
11. **Rahman MM** and Thurston GD “Outdoor PM2.5 Associations with Cardiovascular Disease Incidence in Dhaka, Bangladesh, and the Respective Roles of Fossil Fuels and Biomass Combustion”, ISEE Conference 2019. (Oral Presentation)
12. **Rahman MM** and Thurston GD, “Short-term Effects of Ambient Air Pollution (PM2.5, SO2, NO2, CO, and O3) on Cardiovascular Outpatient Visits, Emergency Department Visits, Hospitalizations, and Mortality in Dhaka, Bangladesh”, NYC Epidemiology Forum Meeting 2019. (Rapid Oral plus Poster)
13. **Rahman MM**, Begum BA, Hopke PK, Thurston GD “Acute Associations of Respiratory Hospital Visits and Admissions with Fine Particulate Matter Mass, Constituents, and Gaseous Pollutants with in Dhaka, Bangladesh”, American Thoracic Society Meeting 2019. (Rapid Oral plus Poster)

### **INVITED TALKS**

**07/2023**     **Air pollution, Temperature, and Health: Evidence from Bangladesh**

Host: Bangladesh Environment Networks (BEN)

**02/2023**     **Air pollution, Temperature, and Health: Evidence from Bangladesh and the United States**

Host: Tulane University School of Public Health and Tropical Medicine

- 11/2022 **Air pollution, Temperature, and Health: Evidence from Bangladesh and the United States**  
Host: National Institute of Environmental Health Sciences (NIEHS)
- 05/2020 **Investigation of the Global Burden of Disease PM2.5 "Equivalent-Toxicity" Assumption in Dhaka, Bangladesh**  
Host: Beth Israel Deaconess Medical Center (Harvard Medical School)

## **MEDIA INTERVIEWS AND MENTIONS**

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Media summary: Md Mostafijur Rahman, Rob McConnell, and Erika Garcia, [Heat waves + air pollution is a deadly combination – study shows how the health risk together is higher than for either alone](#) — The Conversation

- Interviewed, [Why Extreme Heat Plus Pollution Is a Deadly Combination](#) — TIME Magazine
- Interviewed, [Air Pollution Surges as Heatwave Sweeps across Europe](#) — Reuters
- Interviewed, [High Heat, Heavy Smog a Deadly Combo](#) — HealthDay
- [Risk of Death Surges When Extreme Heat and Air Pollution Coincide](#) — National Science Foundation (NSF)
- [High Heat, Heavy Smog a Deadly Combo: Study](#) — U.S. News & World Report
- [When Heat Waves Meet Air Pollution, Death Risks Rise Substantially](#) — SCIENTIFIC AMERICAN
- [University of Southern California Researchers Find Risk of Death Surges When Extreme Heat and Air Pollution Coincide](#) — Sierra Sun Times
- [Another Dangerous Side-Effect of Europe's Heatwave: Air Pollution Surge](#) — FOX NEWS

## **RESEARCH SUPPORT**

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### **Completed Funding:**

- 2020 – 2023 **Particulate Air Pollutants and Autism Risk: Exposure Characteristics, Indicators of Susceptibility, and Mechanistic Pathways** (R01ES029963)  
PIs: Anny Xiang/Rob McConnell  
Role: Postdoctoral Scholar
- 2020 – 2023 **Environmental Exposures, Host Factors and Human Disease** (P30ES007048)  
PI: Rob McConnell  
Role: Postdoctoral Scholar

### **Submitted Proposals:**

K99/R00: “**Impacts of maternal green space exposure on autism risk: the role of air pollution, maternal immune activators, and oxidative stress**” (Role: PI)  
Impact score: 29 (Status: Not Funded)

## **CAREER DEVELOPMENT ACTIVITIES**

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2022 – [Future Faculty Teaching Training Program](#) offered by USC Center for Excellence in Teaching

## **PROFESSIONAL MEMBERSHIP**

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2018 – Present	International Society of Environmental Epidemiology (ISEE)
2020 – Present	International Meeting for Autism Research (INSAR)
2019	American Public Health Association (APHA)
2019	American Thoracic Society (ATS)
2018	Air and Waste Management Association

## **SERVICE**

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### ***Ad hoc* journal reviewer:**

- Scientific Reports
- Journal of Air and Waste Management Association
- Science of Total Environment
- Environmental Research
- American Journal of Respiratory and Critical Care Medicine
- Environment International

### **Abstract reviewer:**

- International of Society of Environmental Epidemiology
- American Public Health Association

## **TEACHING EXPERIENCE**

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Fall 2018	<b>Teaching Assistant</b> Course: Aerosol Science and Technology (~15 MS and Doctoral Students) Department of Environmental Medicine, New York University, New York, NY
Spring 2019 and Spring 2020	<b>Teaching Assistant</b> Course: Environmental Health (~ 40 BS, MS and Doctoral Students) Department of Environmental Medicine, New York University, New York, NY
Fall 2019	<b>Teaching Assistant</b> Course: Global Climate Change, Air Pollution, and Health (~ 20 MS and Doctoral Students) Department of Environmental Medicine, New York University, New York, NY

### **Guest lectures**

- Course: Statistical Methods in Environmental Epidemiology, Spring 2023  
Department of Population and Public Health Sciences, University of Southern California, Los Angeles  
Lecture topic: Climate Change and Health (April 28, 2023)  
Class size: ~4 MS and Doctoral Students  
Lecture length: 2 hours and 45 minutes regular weekly lecture for a 4 credits course.
- Course: Aerosol Science and Technology, Fall 2018  
Department of Environmental Medicine, New York University, New York, NY  
Lecture topic: Particle Size Distribution (September 18, 2018)  
Class size: ~15 MS and Doctoral Students  
Lecture length: 2 hours and 45 minutes regular weekly lecture for a 4 credits course.
- Course: Global Climate Change, Air Pollution, and Health, Fall 2019  
Department of Environmental Medicine, New York University, New York, NY  
Lecture topic: Practical Introduction to the EdGCM Global Climate Model (October 1, 2019)

Class size: ~20 MS and Doctoral Students

Lecture length: 2 hours and 45 minutes regular weekly lecture for a 4 credits course.

- Course: Environmental Health, Spring 2020  
Department of Environmental Medicine, New York University, New York, NY  
Topic: Environmental Toxic Metals and Elements (March 3, 2020)  
Class size: ~40 BS, MS and Doctoral Students  
Lecture length: 2 hours and 45 minutes regular weekly lecture for a 4 credits course.

## **MENTORING EXPERIENCE**

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- 01/2020 — Present **Xin Yu**  
PhD Candidate in Population, Health, and Place Program,  
University of Southern California, Los Angeles, CA  
Role: Primary junior mentor
- 10/2021 — 07/2022 **Melissa Lorenzo**  
MS Student in Biostatistics Program,  
University of Southern California, Los Angeles, CA  
Role: Primary junior mentor
- 10/2021 — 06/2022 **Zainab Hasan**  
MS Student in Applied Biostatistics and Epidemiology Program,  
University of Southern California, Los Angeles, CA  
Role: Primary junior mentor
- 01/2022 — 06/2022 **Mehjar Azzouz**  
MD Candidate at Gothenburg University, Gothenburg, Sweden  
Visiting research Scholar at University of Southern California, Los Angeles, CA  
Role: Primary junior mentor
- 03/2021 — 07/2021 **Sarah Carter, PhD**  
Postdoctoral research fellow, Maternal and Child Health,  
Department of Research & Evaluation, Kaiser Permanente Southern California  
Role: Co-mentor on a research project examining near roadway air pollution effects on  
autism risk.
- 05/2018 — 08/2019 **Tahmid Zawad**  
MS Student in Environmental Health Sciences Program, New York University, NY  
Role: Co-mentor on a research project examining biomass cookstove health effects  
among rural Bangladeshi women